

Universidad de Granada



Cloud Computing: Servicios y Aplicaciones

Bases de Datos NoSQL: MongoDB

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Objetivo

El objetivo de esta práctica es familiarizarse con el uso de un sistema de gestión de bases de datos en entornos Big Data (MongoDB).

Tareas

Consulta de Documentos

Crear la colección pedidos en cada BD asociada a vuestro usuario, sobre la que se realizarán diversas operaciones CRUD. Para crear la colección abre y ejecuta el script insertar_pedidos.js (accesible en /tmp/mongo). Las tareas a realizar son las siguientes (Medina Rodríguez, 2017b):

1. Visualiza la colección pedidos y familiarízate con ella. Observa los distintos tipos de datos y sus estructuras dispares.

```
var object = db.pedidos.find().pretty();
```

2. Visualiza sólo el primer documento de la colección. Utiliza los métodos .limit() y .findOne()

```
var object = db.pedidos.findOne();
```

```
var object = db.pedidos.find().limit(1).pretty();
```

3. Visualiza el cliente con id_cliente = 2222

```
var object = db.pedidos.find({"id_cliente": 2222}).pretty();
```

4. Visualiza los clientes que hayan pedido algún producto de más de 94 euros

```
var object = db.pedidos.find({"Pedidos.Productos.Precio_unidad": {$gt: 94}}).pretty();
```

5. Visualiza los clientes de Jaén o Salamanca (excluye los datos de los pedidos). Utiliza los operador \$or e \$in

```
var object = db.pedidos.find(  
  {$or:[{"Localidad": "Salamanca"}, {"Localidad": "Jaen"}]},  
  {"Pedidos": 0}  
).pretty();
```

```
var object = db.pedidos.find(  
  {"Localidad": {$in: ["Salamanca", "Jaen"]}},  
  {"Pedidos": 0}  
).pretty();
```

6. Visualiza los clientes no tienen campo pedidos

```
var object = db.pedidos.find({"Pedidos": {$exists: false}}).pretty();
```

7. Visualiza los clientes que hayan nacido en 1963

```
var object = db.pedidos.find({"Fnacimiento": {$gte: new Date("1963-01-01"), $lt: new Date("1964-01-01")}}).pretty();
```

8. Visualiza los clientes que hayan pedido algún producto fabricado por Canon y algún producto cuyo precio sea inferior a 15 euros

```
var object = db.pedidos.find(
  {"Pedidos.Productos.Fabricante": "Canon",
  "Pedidos.Productos.Precio_unidad": {$lt: 15}}
).pretty();
```

9. Datos personales (id_cliente, Nombre, Direccion, Localidad y Fnacimiento) de los clientes cuyo nombre empieza por la cadena "c" (No distinguir entre mayúsculas y minúsculas)

```
var object = db.pedidos.find(
  {"Nombre": /^c/i},
  {"id_cliente": 1, "Nombre": 1, "Direccion": 1, "Localidad": 1, "Fnacimiento": 1,}
).pretty();
```

10. Visualiza los datos personales de los clientes (excluyendo _id). Limita los documentos a 4

```
var object = db.pedidos.find(
  {},
  {"_id": 0, "Pedidos": 0, "Facturacion": 0}
).limit(4).pretty();
```

11. Ídem anterior pero ordenando los documentos por Localidad (ascendente) e id_cliente (descendente)

```
var object = db.pedidos.find(
  {},
  {"_id": 0, "Pedidos": 0, "Facturacion": 0}
).sort({"Localidad": 1, "id_cliente": -1}).limit(4).pretty();
```

Resultados

```
[mcc4423998@hadoop-master ~]$ docker exec -it mm.mongodb mongo ./root/1.js
MongoDB shell version v3.4.3
connecting to: mongodb://127.0.0.1:27017
MongoDB server version: 3.4.3
1.
{
  "_id" : ObjectId("59049eead22ce4501abe3e2c"),
  "id_cliente" : 1111,
  "Nombre" : "Pedro Ramirez",
  "Direccion" : "Calle Los Romero 14",
  "Localidad" : "Sevilla",
  "Fnacimiento" : ISODate("1963-04-03T00:00:00Z"),
  "Facturacion" : 5000,
```

```

    "Pedidos" : [
      {
        "id_pedido" : 1,
        "Productos" : [
          {
            "id_producto" : 1,
            "Nombre" : "Pentium IV",
            "Fabricante" : "Intel",
            "Precio_unidad" : 390,
            "Cantidad" : 1
          },
          {
            "id_producto" : 2,
            "Nombre" : "Tablet 8 pulgadas",
            "Precio_unidad" : 95,
            "Cantidad" : 1
          }
        ]
      },
      {
        "id_pedido" : 2,
        "Productos" : [
          {
            "id_producto" : 77,
            "Nombre" : "Impresora Laser",
            "Fabricante" : "Canon",
            "Precio_unidad" : 115,
            "Cantidad" : 3
          }
        ]
      }
    ]
  }
}

{
  "_id" : ObjectId("59049eebd22ce4501abe3e2d"),
  "id_cliente" : 2222,
  "Nombre" : "Juan Gomez",
  "Direccion" : "Perpetuo Socorro 9",
  "Localidad" : "Salamanca",
  "Fnacimiento" : ISODate("1960-08-17T00:00:00Z"),
  "Facturacion" : 6500,
  "Pedidos" : [
    {
      "id_pedido" : 1,
      "Productos" : [
        {
          "id_producto" : 1,
          "Nombre" : "Pentium IV",
          "Fabricante" : "Intel",
          "Precio_unidad" : 100,
          "Cantidad" : 1
        },
        {
          "id_producto" : 42,
          "Nombre" : "Portatil ASM Mod. 254",
          "Fabricante" : "Intel",
          "Precio_unidad" : 455,
          "Cantidad" : 2
        },
        {
          "id_producto" : 27,
          "Nombre" : "Cable USB",
          "Precio_unidad" : 11,
          "Cantidad" : 12
        }
      ]
    },
    {
      "id_pedido" : 2,
      "Productos" : [
        {
          "id_producto" : 77,
          "Nombre" : "Impresora Laser",
          "Fabricante" : "Canon",
          "Precio_unidad" : 128,
          "Cantidad" : 3
        },
        {
          "id_producto" : 42,
          "Nombre" : "Portatil ASM Mod. 254",
          "Fabricante" : "Intel",
          "Precio_unidad" : 451,
          "Cantidad" : 5
        }
      ]
    }
  ]
}

```

```

        {
            "id_producto" : 21,
            "Nombre" : "Disco Duro 500GB",
            "Precio_unidad" : 99,
            "Cantidad" : 10
        }
    ],
    {
        "id_pedido" : 3,
        "Productos" : [
            {
                "id_producto" : 1,
                "Nombre" : "Pentium IV",
                "Fabricante" : "Intel",
                "Precio_unidad" : 94,
                "Cantidad" : 5
            },
            {
                "id_producto" : 95,
                "Nombre" : "SAI 5H Mod. 258",
                "Precio_unidad" : 213,
                "Cantidad" : 2
            },
            {
                "id_producto" : 21,
                "Precio_unidad" : 66,
                "Nombre" : "Disco Duro 500GB",
                "Cantidad" : 10
            }
        ]
    }
]
}
{
    "_id" : ObjectId("59049eebd22ce4501abe3e2e"),
    "id_cliente" : 3333,
    "Nombre" : "Carlos Montes",
    "Direccion" : "Salsipuedes 13",
    "Localidad" : "Jaen",
    "Fnacimiento" : ISODate("1967-11-25T00:00:00Z"),
    "Facturacion" : 8000
}
{
    "_id" : ObjectId("59049eebd22ce4501abe3e2f"),
    "id_cliente" : 4444,
    "Nombre" : "Carmelo Coton",
    "Direccion" : "La Luna 103",
    "Localidad" : "Jaen",
    "Fnacimiento" : ISODate("1969-01-06T00:00:00Z"),
    "Facturacion" : 12300
}
{
    "_id" : ObjectId("59049eebd22ce4501abe3e30"),
    "id_cliente" : 5555,
    "Nombre" : "Cristina Miralles",
    "Direccion" : "San Fernando 28",
    "Localidad" : "Granada",
    "Fnacimiento" : ISODate("1970-07-12T00:00:00Z"),
    "Facturacion" : 16500,
    "Pedidos" : [
        {
            "id_pedido" : 1,
            "Productos" : [
                {
                    "id_producto" : 95,
                    "Nombre" : "SAI 5H Mod. 258",
                    "Precio_unidad" : 211,
                    "Cantidad" : 2
                },
                {
                    "id_producto" : 42,
                    "Nombre" : "Portatil ASM Mod. 254",
                    "Precio_unidad" : 460,
                    "Fabricante" : "Intel",
                    "Cantidad" : 2
                },
                {
                    "id_producto" : 77,
                    "Nombre" : "Impresora Laser",
                    "Fabricante" : "Canon",
                    "Precio_unidad" : 119,
                    "Cantidad" : 2
                }
            ]
        }
    ]
}

```

```

    }
  ]
}
{
  "_id" : ObjectId("59049eebd22ce4501abe3e31"),
  "id_cliente" : 6666,
  "Nombre" : "Chema Pamundi",
  "Direccion" : "Recogidas 54",
  "Localidad" : "Granada",
  "Fnacimiento" : ISODate("1969-02-04T00:00:00Z"),
  "Facturacion" : 5000
}
{
  "_id" : ObjectId("59049eebd22ce4501abe3e32"),
  "id_cliente" : 777,
  "Nombre" : "Alberto Matero",
  "Direccion" : "Pelayo 4",
  "Localidad" : "Sevilla",
  "Facturacion" : 2500,
  "Pedidos" : null
}
2.
1111|Pedro Ramirez
and
{
  "_id" : ObjectId("59049eead22ce4501abe3e2c"),
  "id_cliente" : 1111,
  "Nombre" : "Pedro Ramirez",
  "Direccion" : "Calle Los Romeros 14",
  "Localidad" : "Sevilla",
  "Fnacimiento" : ISODate("1963-04-03T00:00:00Z"),
  "Facturacion" : 5000,
  "Pedidos" : [
    {
      "id_pedido" : 1,
      "Productos" : [
        {
          "id_producto" : 1,
          "Nombre" : "Pentium IV",
          "Fabricante" : "Intel",
          "Precio_unidad" : 390,
          "Cantidad" : 1
        },
        {
          "id_producto" : 2,
          "Nombre" : "Tablet 8 pulgadas",
          "Precio_unidad" : 95,
          "Cantidad" : 1
        }
      ]
    },
    {
      "id_pedido" : 2,
      "Productos" : [
        {
          "id_producto" : 77,
          "Nombre" : "Impresora Laser",
          "Fabricante" : "Canon",
          "Precio_unidad" : 115,
          "Cantidad" : 3
        }
      ]
    }
  ]
}
3.
{
  "_id" : ObjectId("59049eebd22ce4501abe3e2d"),
  "id_cliente" : 2222,
  "Nombre" : "Juan Gomez",
  "Direccion" : "Perpetuo Socorro 9",
  "Localidad" : "Salamanca",
  "Fnacimiento" : ISODate("1960-08-17T00:00:00Z"),
  "Facturacion" : 6500,
  "Pedidos" : [
    {
      "id_pedido" : 1,
      "Productos" : [
        {
          "id_producto" : 1,
          "Nombre" : "Pentium IV",
          "Fabricante" : "Intel",
          "Precio_unidad" : 100,

```

```

    },
    {
        "id_producto" : 42,
        "Nombre" : "Portatil ASM Mod. 254",
        "Fabricante" : "Intel",
        "Precio_unidad" : 455,
        "Cantidad" : 2
    },
    {
        "id_producto" : 27,
        "Nombre" : "Cable USB",
        "Precio_unidad" : 11,
        "Cantidad" : 12
    }
]
},
{
    "id_pedido" : 2,
    "Productos" : [
        {
            "id_producto" : 77,
            "Nombre" : "Impresora Laser",
            "Fabricante" : "Canon",
            "Precio_unidad" : 128,
            "Cantidad" : 3
        },
        {
            "id_producto" : 42,
            "Nombre" : "Portatil ASM Mod. 254",
            "Fabricante" : "Intel",
            "Precio_unidad" : 451,
            "Cantidad" : 5
        },
        {
            "id_producto" : 21,
            "Nombre" : "Disco Duro 500GB",
            "Precio_unidad" : 99,
            "Cantidad" : 10
        }
    ]
},
{
    "id_pedido" : 3,
    "Productos" : [
        {
            "id_producto" : 1,
            "Nombre" : "Pentium IV",
            "Fabricante" : "Intel",
            "Precio_unidad" : 94,
            "Cantidad" : 5
        },
        {
            "id_producto" : 95,
            "Nombre" : "SAI 5H Mod. 258",
            "Precio_unidad" : 213,
            "Cantidad" : 2
        },
        {
            "id_producto" : 21,
            "Precio_unidad" : 66,
            "Nombre" : "Disco Duro 500GB",
            "Cantidad" : 10
        }
    ]
}
]
}

```

4.

```

{
    "_id" : ObjectId("59049eead22ce4501abe3e2c"),
    "id_cliente" : 1111,
    "Nombre" : "Pedro Ramirez",
    "Direccion" : "Calle Los Romero 14",
    "Localidad" : "Sevilla",
    "Fnacimiento" : ISODate("1963-04-03T00:00:00Z"),
    "Facturacion" : 5000,
    "Pedidos" : [
        {
            "id_pedido" : 1,
            "Productos" : [
                {
                    "id_producto" : 1,
                    "Nombre" : "Pentium IV",

```



```

        "Fabricante" : "Intel",
        "Precio_unidad" : 390,
        "Cantidad" : 1
    },
    {
        "id_producto" : 2,
        "Nombre" : "Tablet 8 pulgadas",
        "Precio_unidad" : 95,
        "Cantidad" : 1
    }
]
},
{
    "id_pedido" : 2,
    "Productos" : [
        {
            "id_producto" : 77,
            "Nombre" : "Impresora Laser",
            "Fabricante" : "Canon",
            "Precio_unidad" : 115,
            "Cantidad" : 3
        }
    ]
}
]
}
{
    "_id" : ObjectId("59049eebd22ce4501abe3e2d"),
    "id_cliente" : 2222,
    "Nombre" : "Juan Gomez",
    "Direccion" : "Perpetuo Socorro 9",
    "Localidad" : "Salamanca",
    "Fnacimiento" : ISODate("1960-08-17T00:00:00Z"),
    "Facturacion" : 6500,
    "Pedidos" : [
        {
            "id_pedido" : 1,
            "Productos" : [
                {
                    "id_producto" : 1,
                    "Nombre" : "Pentium IV",
                    "Fabricante" : "Intel",
                    "Precio_unidad" : 100,
                    "Cantidad" : 1
                },
                {
                    "id_producto" : 42,
                    "Nombre" : "Portatil ASM Mod. 254",
                    "Fabricante" : "Intel",
                    "Precio_unidad" : 455,
                    "Cantidad" : 2
                },
                {
                    "id_producto" : 27,
                    "Nombre" : "Cable USB",
                    "Precio_unidad" : 11,
                    "Cantidad" : 12
                }
            ]
        },
        {
            "id_pedido" : 2,
            "Productos" : [
                {
                    "id_producto" : 77,
                    "Nombre" : "Impresora Laser",
                    "Fabricante" : "Canon",
                    "Precio_unidad" : 128,
                    "Cantidad" : 3
                },
                {
                    "id_producto" : 42,
                    "Nombre" : "Portatil ASM Mod. 254",
                    "Fabricante" : "Intel",
                    "Precio_unidad" : 451,
                    "Cantidad" : 5
                },
                {
                    "id_producto" : 21,
                    "Nombre" : "Disco Duro 500GB",

```

```

        "Precio_unidad" : 99,
        "Cantidad" : 10
    }
    ],
    {
        "id_pedido" : 3,
        "Productos" : [
            {
                "id_producto" : 1,
                "Nombre" : "Pentium IV",
                "Fabricante" : "Intel",
                "Precio_unidad" : 94,
                "Cantidad" : 5
            },
            {
                "id_producto" : 95,
                "Nombre" : "SAI 5H Mod. 258",
                "Precio_unidad" : 213,
                "Cantidad" : 2
            },
            {
                "id_producto" : 21,
                "Precio_unidad" : 66,
                "Nombre" : "Disco Duro 500GB",
                "Cantidad" : 10
            }
        ]
    }
]
}
{
    "_id" : ObjectId("59049eebd22ce4501abe3e30"),
    "id_cliente" : 5555,
    "Nombre" : "Cristina Miralles",
    "Direccion" : "San Fernando 28",
    "Localidad" : "Granada",
    "Fnacimiento" : ISODate("1970-07-12T00:00:00Z"),
    "Facturacion" : 16500,
    "Pedidos" : [
        {
            "id_pedido" : 1,
            "Productos" : [
                {
                    "id_producto" : 95,
                    "Nombre" : "SAI 5H Mod. 258",
                    "Precio_unidad" : 211,
                    "Cantidad" : 2
                },
                {
                    "id_producto" : 42,
                    "Nombre" : "Portatil ASM Mod. 254",
                    "Precio_unidad" : 460,
                    "Fabricante" : "Intel",
                    "Cantidad" : 2
                },
                {
                    "id_producto" : 77,
                    "Nombre" : "Impresora Laser",
                    "Fabricante" : "Canon",
                    "Precio_unidad" : 119,
                    "Cantidad" : 2
                }
            ]
        }
    ]
}
5.
{
    "_id" : ObjectId("59049eebd22ce4501abe3e2d"),
    "id_cliente" : 2222,
    "Nombre" : "Juan Gomez",
    "Direccion" : "Perpetuo Socorro 9",
    "Localidad" : "Salamanca",
    "Fnacimiento" : ISODate("1960-08-17T00:00:00Z"),
    "Facturacion" : 6500
}
{
    "_id" : ObjectId("59049eebd22ce4501abe3e2e"),
    "id_cliente" : 3333,

```

```

        "Nombre" : "Carlos Montes",
        "Direccion" : "Salsipuedes 13",
        "Localidad" : "Jaen",
        "Fnacimiento" : ISODate("1967-11-25T00:00:00Z"),
        "Facturacion" : 8000
    }
    {
        "_id" : ObjectId("59049eebd22ce4501abe3e2f"),
        "id_cliente" : 4444,
        "Nombre" : "Carmelo Coton",
        "Direccion" : "La Luna 103",
        "Localidad" : "Jaen",
        "Fnacimiento" : ISODate("1969-01-06T00:00:00Z"),
        "Facturacion" : 12300
    }
    or
    {
        "_id" : ObjectId("59049eebd22ce4501abe3e2d"),
        "id_cliente" : 2222,
        "Nombre" : "Juan Gomez",
        "Direccion" : "Perpetuo Socorro 9",
        "Localidad" : "Salamanca",
        "Fnacimiento" : ISODate("1960-08-17T00:00:00Z"),
        "Facturacion" : 6500
    }
    {
        "_id" : ObjectId("59049eebd22ce4501abe3e2e"),
        "id_cliente" : 3333,
        "Nombre" : "Carlos Montes",
        "Direccion" : "Salsipuedes 13",
        "Localidad" : "Jaen",
        "Fnacimiento" : ISODate("1967-11-25T00:00:00Z"),
        "Facturacion" : 8000
    }
    {
        "_id" : ObjectId("59049eebd22ce4501abe3e2f"),
        "id_cliente" : 4444,
        "Nombre" : "Carmelo Coton",
        "Direccion" : "La Luna 103",
        "Localidad" : "Jaen",
        "Fnacimiento" : ISODate("1969-01-06T00:00:00Z"),
        "Facturacion" : 12300
    }
    6.
    {
        "_id" : ObjectId("59049eebd22ce4501abe3e2e"),
        "id_cliente" : 3333,
        "Nombre" : "Carlos Montes",
        "Direccion" : "Salsipuedes 13",
        "Localidad" : "Jaen",
        "Fnacimiento" : ISODate("1967-11-25T00:00:00Z"),
        "Facturacion" : 8000
    }
    {
        "_id" : ObjectId("59049eebd22ce4501abe3e2f"),
        "id_cliente" : 4444,
        "Nombre" : "Carmelo Coton",
        "Direccion" : "La Luna 103",
        "Localidad" : "Jaen",
        "Fnacimiento" : ISODate("1969-01-06T00:00:00Z"),
        "Facturacion" : 12300
    }
    {
        "_id" : ObjectId("59049eebd22ce4501abe3e31"),
        "id_cliente" : 6666,
        "Nombre" : "Chema Pamundi",
        "Direccion" : "Recogidas 54",
        "Localidad" : "Granada",
        "Fnacimiento" : ISODate("1969-02-04T00:00:00Z"),
        "Facturacion" : 5000
    }
    7.
    {
        "_id" : ObjectId("59049eead22ce4501abe3e2c"),
        "id_cliente" : 1111,
        "Nombre" : "Pedro Ramirez",
        "Direccion" : "Calle Los Romero 14",
        "Localidad" : "Sevilla",
        "Fnacimiento" : ISODate("1963-04-03T00:00:00Z"),
        "Facturacion" : 5000,

```

```

    "Pedidos" : [
      {
        "id_pedido" : 1,
        "Productos" : [
          {
            "id_producto" : 1,
            "Nombre" : "Pentium IV",
            "Fabricante" : "Intel",
            "Precio_unidad" : 390,
            "Cantidad" : 1
          },
          {
            "id_producto" : 2,
            "Nombre" : "Tablet 8 pulgadas",
            "Precio_unidad" : 95,
            "Cantidad" : 1
          }
        ]
      },
      {
        "id_pedido" : 2,
        "Productos" : [
          {
            "id_producto" : 77,
            "Nombre" : "Impresora Laser",
            "Fabricante" : "Canon",
            "Precio_unidad" : 115,
            "Cantidad" : 3
          }
        ]
      }
    ]
  }
}
8. {
  "_id" : ObjectId("59049eebd22ce4501abe3e2d"),
  "id_cliente" : 2222,
  "Nombre" : "Juan Gomez",
  "Direccion" : "Perpetuo Socorro 9",
  "Localidad" : "Salamanca",
  "Fnacimiento" : ISODate("1960-08-17T00:00:00Z"),
  "Facturacion" : 6500,
  "Pedidos" : [
    {
      "id_pedido" : 1,
      "Productos" : [
        {
          "id_producto" : 1,
          "Nombre" : "Pentium IV",
          "Fabricante" : "Intel",
          "Precio_unidad" : 100,
          "Cantidad" : 1
        },
        {
          "id_producto" : 42,
          "Nombre" : "Portatil ASM Mod. 254",
          "Fabricante" : "Intel",
          "Precio_unidad" : 455,
          "Cantidad" : 2
        },
        {
          "id_producto" : 27,
          "Nombre" : "Cable USB",
          "Precio_unidad" : 11,
          "Cantidad" : 12
        }
      ]
    },
    {
      "id_pedido" : 2,
      "Productos" : [
        {
          "id_producto" : 77,
          "Nombre" : "Impresora Laser",
          "Fabricante" : "Canon",
          "Precio_unidad" : 128,
          "Cantidad" : 3
        },
        {
          "id_producto" : 42,

```

```

        "Nombre" : "Portatil ASM Mod. 254",
        "Fabricante" : "Intel",
        "Precio_unidad" : 451,
        "Cantidad" : 5
    },
    {
        "id_producto" : 21,
        "Nombre" : "Disco Duro 500GB",
        "Precio_unidad" : 99,
        "Cantidad" : 10
    }
]
},
{
    "id_pedido" : 3,
    "Productos" : [
        {
            "id_producto" : 1,
            "Nombre" : "Pentium IV",
            "Fabricante" : "Intel",
            "Precio_unidad" : 94,
            "Cantidad" : 5
        },
        {
            "id_producto" : 95,
            "Nombre" : "SAI 5H Mod. 258",
            "Precio_unidad" : 213,
            "Cantidad" : 2
        },
        {
            "id_producto" : 21,
            "Precio_unidad" : 66,
            "Nombre" : "Disco Duro 500GB",
            "Cantidad" : 10
        }
    ]
}
]
}

```

9.

```

{
    "_id" : ObjectId("59049eebd22ce4501abe3e2e"),
    "id_cliente" : 3333,
    "Nombre" : "Carlos Montes",
    "Direccion" : "Salsipuedes 13",
    "Localidad" : "Jaen",
    "Fnacimiento" : ISODate("1967-11-25T00:00:00Z")
}
{
    "_id" : ObjectId("59049eebd22ce4501abe3e2f"),
    "id_cliente" : 4444,
    "Nombre" : "Carmelo Coton",
    "Direccion" : "La Luna 103",
    "Localidad" : "Jaen",
    "Fnacimiento" : ISODate("1969-01-06T00:00:00Z")
}
{
    "_id" : ObjectId("59049eebd22ce4501abe3e30"),
    "id_cliente" : 5555,
    "Nombre" : "Cristina Miralles",
    "Direccion" : "San Fernando 28",
    "Localidad" : "Granada",
    "Fnacimiento" : ISODate("1970-07-12T00:00:00Z")
}
{
    "_id" : ObjectId("59049eebd22ce4501abe3e31"),
    "id_cliente" : 6666,
    "Nombre" : "Chema Pamundi",
    "Direccion" : "Recogidas 54",
    "Localidad" : "Granada",
    "Fnacimiento" : ISODate("1969-02-04T00:00:00Z")
}

```

10.

```

{
    "id_cliente" : 1111,
    "Nombre" : "Pedro Ramirez",
    "Direccion" : "Calle Los Romero 14",
    "Localidad" : "Sevilla",
    "Fnacimiento" : ISODate("1963-04-03T00:00:00Z")
}

```

```

{
  "id_cliente" : 2222,
  "Nombre" : "Juan Gomez",
  "Direccion" : "Perpetuo Socorro 9",
  "Localidad" : "Salamanca",
  "Fnacimiento" : ISODate("1960-08-17T00:00:00Z")
}
{
  "id_cliente" : 3333,
  "Nombre" : "Carlos Montes",
  "Direccion" : "Salsipuedes 13",
  "Localidad" : "Jaen",
  "Fnacimiento" : ISODate("1967-11-25T00:00:00Z")
}
{
  "id_cliente" : 4444,
  "Nombre" : "Carmelo Coton",
  "Direccion" : "La Luna 103",
  "Localidad" : "Jaen",
  "Fnacimiento" : ISODate("1969-01-06T00:00:00Z")
}
11.
{
  "id_cliente" : 6666,
  "Nombre" : "Chema Pamundi",
  "Direccion" : "Recogidas 54",
  "Localidad" : "Granada",
  "Fnacimiento" : ISODate("1969-02-04T00:00:00Z")
}
{
  "id_cliente" : 5555,
  "Nombre" : "Cristina Miralles",
  "Direccion" : "San Fernando 28",
  "Localidad" : "Granada",
  "Fnacimiento" : ISODate("1970-07-12T00:00:00Z")
}
{
  "id_cliente" : 4444,
  "Nombre" : "Carmelo Coton",
  "Direccion" : "La Luna 103",
  "Localidad" : "Jaen",
  "Fnacimiento" : ISODate("1969-01-06T00:00:00Z")
}
{
  "id_cliente" : 3333,
  "Nombre" : "Carlos Montes",
  "Direccion" : "Salsipuedes 13",
  "Localidad" : "Jaen",
  "Fnacimiento" : ISODate("1967-11-25T00:00:00Z")
}

```

Para el punto 2, con `.findOne()`¹ existe una particularidad al querer imprimirlo o recuperarlo, da una excepción, puesto que no es un objeto (cursor) en sí, sino que un documento en realidad y hay que recuperarlo como tal. Cuando es un objeto se puede iterar e imprimirlo como un JSON².

Agregación

A partir de la colección pedidos utilizaremos consultas más complejas por medio de

los operadores de agregación (pipeline) (Medina Rodríguez, 2017b). Por facilidad se indica la consulta en formato SQL estándar. Las tareas a realizar en este caso obtener:

1. No. total de clientes

```

SELECT COUNT(*) "NUMERO DE CLIENTES"
FROM pedidos;

```

```

var object = db.pedidos.count();

```

```

var object = db.pedidos.aggregate([

```

1 <https://docs.mongodb.com/manual/reference/method/db.collection.findOne/>

2 <https://docs.mongodb.com/manual/tutorial/iterate-a-cursor/>

```
{ $count: "NUMERO DE CLIENTES" }
```

```
]);
```

2. No. total de clientes de Jaén

```
SELECT COUNT(*) "NUMERO DE CLIENTES"
```

```
FROM pedidos
```

```
WHERE Localidad = "Jaen";
```

```
var object = db.pedidos.find(
```

```
  {"Localidad": "Jaen"}
```

```
).count();
```

```
var object = db.pedidos.aggregate([
```

```
  { $match: { Localidad: "Jaen" } },
```

```
  { $count: "NUMERO DE CLIENTES" }
```

```
]);
```

3. Facturación total clientes por localidad

```
SELECT Localidad, SUM (Facturacion) "TOTAL"
```

```
FROM pedidos
```

```
GROUP BY Localidad;
```

```
var object = db.pedidos.aggregate(
```

```
  [
```

```
    {
```

```
      $group:
```

```
      {
```

```
        "_id": "$Localidad",
```

```
        "TOTAL": { $sum: "$Facturacion" }
```

```
      }
```

```
    }
```

```
  ]
```

```
);
```

4. Facturación media de clientes por localidad para las localidades distintas a "Jaen" con facturación media mayor de 5000. Ordenación por Localidad descendente. Eliminar el _id y poner el nombre en mayúsculas.

```
SELECT Localidad, AVG (Facturacion) "FACTURACION MEDIA"
FROM pedidos
WHERE Localidad <> "Jaen"
GROUP BY Localidad
HAVING AVG (Facturacion) > 5000
ORDER BY Localidad DESC;
```

```
var object = db.pedidos.aggregate(
  [
    {
      $group:
      {
        "_id": "$Localidad",
        "FACTURACION MEDIA": { $avg: "$Facturacion" }
      }
    },
    {
      $match:
      {
        "_id": { $ne: "Jaen" },
        "FACTURACION MEDIA": { $gt: 5000 }
      }
    },
    {
      $sort: { "_id": -1 }
    },
    {
      $project:
      {
        "_id": 0,
        "Localidad": { $toUpper: "$_id" },
        "FACTURACION MEDIA": 1
      }
    }
  ]
)
```



```

    }
  }
]
);

```

5. Calcula la cantidad total facturada por cada cliente (uso de “unwind”)

```

SELECT id_cliente "IDENTIFICADOR", nombre "NOMBRE COMPLETO",
SUM (Precio_unidad * Pedidos) "TOTAL CLIENTE"
FROM pedidos
GROUP BY id_cliente, nombre
ORDER BY 2 DESC;

```

```

var object = db.pedidos.aggregate(
  [
    { $unwind: "$Pedidos" },
    { $unwind: "$Pedidos.Productos" },
    {
      $group:
      {
        "_id": {id_cliente: "$id_cliente", nombre: "$Nombre"},
        "TOTAL CLIENTE":
        {
          $sum:
          {
            $multiply: [ "$Pedidos.Productos.Precio_unidad",
"$Pedidos.Productos.Cantidad" ]
          }
        }
      }
    },
    {
      $project:
      {

```

```

        "_id": 0,

        "IDENTIFICADOR": "$_id.id_cliente",

        "NOMBRE COMPLETO": "$_id.nombre",

        "TOTAL CLIENTE": 1

    }

},

{

    $sort: { "NOMBRE COMPLETO": -1 }

}

]

);

```

Resultados

```

[mcc4423998@hadoop-master ~]$ docker exec -i mm.mongodb mongo ./root/2.js
MongoDB shell version v3.4.3
connecting to: mongodb://127.0.0.1:27017
MongoDB server version: 3.4.3
1.
NUMERO DE CLIENTES: 7
or
{ "NUMERO DE CLIENTES" : 7 }
2.
NUMERO DE CLIENTES: 2
or
{ "NUMERO DE CLIENTES" : 2 }
3.
{ "_id" : "Granada", "TOTAL" : 21500 }
{ "_id" : "Jaen", "TOTAL" : 20300 }
{ "_id" : "Salamanca", "TOTAL" : 6500 }
{ "_id" : "Sevilla", "TOTAL" : 7500 }
4.
{ "FACTURACION MEDIA" : 6500, "Localidad" : "SALAMANCA" }
{ "FACTURACION MEDIA" : 10750, "Localidad" : "GRANADA" }
5.
{
    "TOTAL CLIENTE" : 830,
    "IDENTIFICADOR" : 1111,
    "NOMBRE COMPLETO" : "Pedro Ramirez"
}
{
    "TOTAL CLIENTE" : 6327,
    "IDENTIFICADOR" : 2222,
    "NOMBRE COMPLETO" : "Juan Gomez"
}
{
    "TOTAL CLIENTE" : 1580,
    "IDENTIFICADOR" : 5555,
    "NOMBRE COMPLETO" : "Cristina Miralles"
}

```

MapReduce

Vamos a utilizar la base de datos libre GeoWorldMap de GeoBytes³. Es una base de datos de países, con sus estados/regiones y ciudades importantes. Sobre esta Base de datos vamos a obtener el par de ciudades que se encuentran más cercanas en cada país, excluyendo a los EE.UU.

3 <http://geobytes.com/geoworldmap/>

Vamos a importar en nuestra BD de MongoDB un archivo con 37245 ciudades del mundo que está en formato csv (/tmp/mongo/Cities.csv) (Ravulavaru, 2014; Medina Rodríguez, 2017a; Medina Rodríguez, 2017b)

```
mongoimport -u <user> -p <clave> --db <bd> --collection cities --type csv --headerline
--file /var/tmp/Cities.csv
```

Las tareas a realizar en este caso son las siguientes:

1. Encontrar las ciudades más cercanas sobre la colección recién creada mediante un enfoque MapReduce conforme a los pasos que se ilustran en el tutorial práctico.

```
var MapCode = function() {
    emit(
        this.CountryID,
        { "data":
            [
                {
                    "city": this.City,
                    "lat": this.Latitude,
                    "lon": this.Longitude
                }
            ]
        });
}

var ReduceCode = function(key, values) {
    var reduced = { "data": [] };

    for (var i in values) {
        var inter = values[i];
        for (var j in inter.data) {
            reduced.data.push(inter.data[j]);
        }
    }

    return reduced;
}

var Finalize = function(key, reduced) {
    if (reduced.data.length == 1) {
        return { "message": "This Country contains only 1 City" };
    }

    var min_dist = 999999999999;
    var city1 = { "city": "" };
    var city2 = { "city": "" };

    var c1; var c2; var d;
    for (var i in reduced.data) {
        for (var j in reduced.data) {
            if (i >= j) continue;
            c1 = reduced.data[i];
            c2 = reduced.data[j];
            d = (c1.lat-c2.lat)*(c1.lat-c2.lat)+(c1.lon-c2.lon)*(c1.lon-c2.lon);
            if (d < min_dist && d > 0) {
                min_dist = d;
                city1 = c1;
                city2 = c2;
            }
        }
    }
}
```

```

    }
}

return {
  "city1": city1.city,
  "city2": city2.city,
  "dist": Math.sqrt(min_dist)
};
}

db.runCommand({
  mapReduce: "cities",
  map: MapCode,
  reduce: ReduceCode,
  finalize: Finalize,
  query: { CountryID: { $ne: 254 } },
  out: { merge: "closest_cities" }
});

var object = db.closest_cities.find({"value.city1": {$ne: 0}, "value.city2": {$ne: 0}}).sort({"value.dist": 1}).pretty();

```

2. ¿Cómo podríamos obtener la ciudades más distantes en cada país?

Podríamos reutilizar las funciones MapCode y ReduceCode del ítem anterior, y modificar la función Finalize, invirtiendo la lógica, así:

```

//reutilizamos las funciones MapCode y ReduceCode

var Finalize = function(key, reduced) {
  if (reduced.data.length == 1) {
    return { "message" : "This Country contains only 1 City" };
  }

  var max_dist = 0;
  var city1 = { "city": "" };
  var city2 = { "city": "" };

  var c1;
  var c2;
  var d;
  for (var i in reduced.data) {
    for (var j in reduced.data) {
      if (i>=j) continue;
      c1 = reduced.data[i];
      c2 = reduced.data[j];
      d = (c1.lat - c2.lat) * (c1.lat - c2.lat) + (c1.lon - c2.lon) * (c1.lon - c2.lon);
      if (d > max_dist && d > 0) {
        max_dist = d;
        city1 = c1;
        city2 = c2;
      }
    }
  }

  return {
    "city1": city1.city,
    "city2": city2.city,
    "dist": Math.sqrt(max_dist)
  };
}

```

```

db.runCommand({
  mapReduce: "cities",
  map: MapCode,
  reduce: ReduceCode,
  finalize: Finalize,
  query: { CountryID: { $ne: 254 } },
  out: { merge: "distant_cities" }
});

var object = db.distant_cities.find({"value.city1": {$ne: ""}, "value.city2": {$ne: ""}}).sort({"value.dist": -1}).pretty();

```

3. ¿Qué ocurre si en un país hay dos parejas de ciudades que están a la misma distancia mínima?
¿Cómo harías para que aparecieran todas?

Modificamos la función Finalize, guardando las coincidencias en un vector, así:

```

//reutilizamos MapCode / ReduceCode

var Finalize = function(key, reduced) {
  if (reduced.data.length == 1) {
    return { "message": "This Country contains only 1 City" };
  }

  var min_dist = 999999999999;
  var cities = [];
  var c1;
  var c2;
  var d;
  for (var i in reduced.data) {
    for (var j in reduced.data) {
      if (i >= j) continue;
      c1 = reduced.data[i];
      c2 = reduced.data[j];
      d = (c1.lat-c2.lat)*(c1.lat-c2.lat)+(c1.lon-c2.lon)*(c1.lon-c2.lon);

      if (d < min_dist && d > 0) {
        min_dist = d;
        cities.push({ "city1": c1.city, "city2": c2.city });
      }
    }
  }

  return {
    "cities": cities,
    "dist": Math.sqrt(min_dist)
  };
};

db.runCommand({
  mapReduce: "cities",
  map: MapCode,
  reduce: ReduceCode,
  finalize: Finalize,
  query: { CountryID: { $ne: 254 } },
  out: { merge: "idem_closest_cities" }
});

var object = db.idem_closest_cities.find("value.dist": {$ne: 999999.9999995}).sort({"value.dist": 1}).pretty();

```

4. ¿Cómo podríamos obtener adicionalmente la cantidad de parejas de ciudades evaluadas para cada país consultado?

Agregando a la función Finalize un contador y evaluando por cada comparación:

```
//reutilizamos MapCode / ReduceCode

var Finalize = function(key, reduced) {
  if (reduced.data.length == 1) {
    return { "message": "This Country contains only 1 City" };
  }
  var min_dist = 999999999999;
  var cities = [];
  var c1;
  var c2;
  var d;
  var count_cities = 0;
  for (var i in reduced.data) {
    for (var j in reduced.data) {
      if (i >= j) continue;
      c1 = reduced.data[i];
      c2 = reduced.data[j];
      d = (c1.lat - c2.lat) * (c1.lat - c2.lat) + (c1.lon - c2.lon) * (c1.lon - c2.lon);
      if (d > 0) {
        count_cities++;
        if (d < min_dist) {
          min_dist = d;
          cities.push({ "city1": c1.city, "city2": c2.city });
        }
      }
    }
  }
  return {
    "cities": cities,
    "evaluated": count_cities,
    "dist": Math.sqrt(min_dist)
  };
}

db.runCommand({
  mapReduce: "cities",
  map: MapCode,
  reduce: ReduceCode,
  finalize: Finalize,
  query: { CountryID: { $ne: 254 } },
  out: { merge: "count_closest_cities" }
});

var object = db.count_closest_cities.find({"value.dist": {$lt: 999999.9999995}}).sort({"value.dist": 1}).pretty();
```

5. ¿Cómo podríamos obtener la distancia media entre las ciudades de cada país?

Agregando a la función Finalize un contador para cada comparación, sumando las distancias, luego sacando el promedio así:

```
//reutilizamos MapCode / ReduceCode

var Finalize = function(key, reduced) {
  if (reduced.data.length == 1) {
    return { "message": "This Country contains only 1 City" };
  }
```

```

    }
    var min_dist = 999999999999;
    var cities = [];
    var c1;
    var c2;
    var d;
    var count_cities = 0;
    var tot_distance = 0;
    for (var i in reduced.data) {
        for (var j in reduced.data) {
            if (i >= j) continue;
            c1 = reduced.data[i];
            c2 = reduced.data[j];
            d = (c1.lat - c2.lat) * (c1.lat - c2.lat) + (c1.lon - c2.lon) * (c1.lon - c2.lon);
            if (d > 0) {
                count_cities++;
                tot_distance += d;
                if (d < min_dist) {
                    min_dist = d;
                    cities.push({ "city1": c1.city, "city2": c2.city });
                }
            }
        }
    }
    return {
        "cities": cities,
        "avgDistance": tot_distance / count_cities,
        "dist": Math.sqrt(min_dist)
    };
}

db.runCommand({
    mapReduce: "cities",
    map: MapCode,
    reduce: ReduceCode,
    finalize: Finalize,
    query: { CountryID: { $ne: 254 } },
    out: { merge: "avg_closest_cities" }
});

var object = db.avg_closest_cities.find({"value.dist": {$lt: 999999.9999995}}).sort({"value.dist": 1}).pretty();

```

6. ¿Mejoraría el rendimiento si creamos un índice? ¿Sobre que campo? Comprobadlo.

Realmente existe una pequeña mejora agregando índices, que sin agregarlos.

Las combinaciones posibles serían: CountryID, CountryID+City, City+Latitude+Longitude, CountryID+City+Latitude+Longitude; que en las pruebas realizadas a veces era mejor uno que otro, y rara vez mejora sin ningún índice. El que da menos tiempo de ejecución es City+Latitude+Longitude, que parece hasta lógico.

Podemos hacer un bucle for para comprobarlo:

```

// tomamos el último query, aplicamos índices

var d;

for(var i = 0; i<10; i++){

```

```

print ( "***** Iteration " + i + "*****" );

db.cities.ensureIndex({"CountryID": 1}, {unique: true});
var d = new Date().getTime();
db.runCommand({
    mapReduce: "cities",
    map: MapCode,
    reduce: ReduceCode,
    finalize: Finalize,
    query: { CountryID: { $ne: 254 } },
    out: { merge: "avg_closest_cities" }
});
print ( "CountryID - Seconds. " + ((new Date().getTime() - d)/1000) );

db.cities.ensureIndex({"CountryID": 1, "City": 1}, {unique: true});
d = new Date().getTime();
db.runCommand({
    mapReduce: "cities",
    map: MapCode,
    reduce: ReduceCode,
    finalize: Finalize,
    query: { CountryID: { $ne: 254 } },
    out: { merge: "avg_closest_cities" }
});
print ( "CountryID+City - Seconds. " + ((new Date().getTime() - d)/1000) );

db.cities.ensureIndex({"City": 1, "Latitude": 1, "Longitude": 1}, {unique: true});
d = new Date().getTime();
db.runCommand({
    mapReduce: "cities",
    map: MapCode,
    reduce: ReduceCode,
    finalize: Finalize,
    query: { CountryID: { $ne: 254 } },
    out: { merge: "avg_closest_cities" }
});
print ( "City+Latitude+Longitude - Seconds. " + ((new Date().getTime() - d)/1000) );

db.cities.ensureIndex({"CountryID": 1, "City": 1, "Latitude": 1, "Longitude": 1}, {unique: true});
d = new Date().getTime();
db.runCommand({
    mapReduce: "cities",
    map: MapCode,
    reduce: ReduceCode,
    finalize: Finalize,
    query: { CountryID: { $ne: 254 } },
    out: { merge: "avg_closest_cities" }
});
print ( "CountryID+City+Latitude+Longitude - Seconds. " + ((new Date().getTime() - d)/1000) );

d = new Date().getTime();
db.runCommand({
    mapReduce: "cities",
    map: MapCode,
    reduce: ReduceCode,
    finalize: Finalize,
    query: { CountryID: { $ne: 254 } },
    out: { merge: "avg_closest_cities" }
});
print ( "NONE - Seconds. " + ((new Date().getTime() - d)/1000) );
}

```


Resultados

```
1.
{
  "_id" : 113,
  "value" : {
    "city1" : "Katni",
    "city2" : "Murwara",
    "dist" : 0.001341640786496747
  }
}
{
  "_id" : 133,
  "value" : {
    "city1" : "Chongju",
    "city2" : "Chungju",
    "dist" : 0.003026549190084301
  }
}
{
  "_id" : 93,
  "value" : {
    "city1" : "Algeciras",
    "city2" : "La Linea",
    "dist" : 0.003162277660168312
  }
}
{
  "_id" : 199,
  "value" : {
    "city1" : "Mayagüez",
    "city2" : "Santurce",
    "dist" : 0.006082762530299229
  }
}
{
  "_id" : 219,
  "value" : {
    "city1" : "Bishan",
    "city2" : "Toa Payoh",
    "dist" : 0.01044030650891059
  }
}
{
  "_id" : 118,
  "value" : {
    "city1" : "Givatayim",
    "city2" : "Ramat Gan",
    "dist" : 0.011180339887502127
  }
}
{
  "_id" : 65,
  "value" : {
    "city1" : "Århus",
    "city2" : "Århus",
    "dist" : 0.011253888216966372
  }
}
{
  "_id" : 253,
  "value" : {
    "city1" : "Saint Albans",
    "city2" : "St Albans",
    "dist" : 0.011677589648553196
  }
}
{
  "_id" : 186,
  "value" : {
    "city1" : "Masqat",
    "city2" : "Muscat",
    "dist" : 0.01173882447265839
  }
}
{
  "_id" : 49,
  "value" : {
    "city1" : "Nanjing",
    "city2" : "Nanjing Jiangsu",
    "dist" : 0.012165525060596124
  }
}
```

```
{
  "_id" : 152,
  "value" : {
    "city1" : "Saint Julians",
    "city2" : "Sliema",
    "dist" : 0.012440257232068867
  }
}
{
  "_id" : 138,
  "value" : {
    "city1" : "Ashrafieh",
    "city2" : "Beirut",
    "dist" : 0.013038404810410333
  }
}
{
  "_id" : 99,
  "value" : {
    "city1" : "Maite",
    "city2" : "Tamuning",
    "dist" : 0.01592607924127576
  }
}
{
  "_id" : 120,
  "value" : {
    "city1" : "Gregory Park",
    "city2" : "Passage Fort",
    "dist" : 0.0159999999999991132
  }
}
{
  "_id" : 10,
  "value" : {
    "city1" : "Turdera",
    "city2" : "Lomas De Zamora",
    "dist" : 0.0159999999999998238
  }
}
{
  "_id" : 68,
  "value" : {
    "city1" : "Bahoruco",
    "city2" : "La Cienaga",
    "dist" : 0.0159999999999998238
  }
}
{
  "_id" : 5,
  "value" : {
    "city1" : "Andorra La Vella",
    "city2" : "Escaldes",
    "dist" : 0.0160000000000000014
  }
}
{
  "_id" : 198,
  "value" : {
    "city1" : "Carcavelos",
    "city2" : "Oeiras",
    "dist" : 0.0160000000000000014
  }
}
{
  "_id" : 243,
  "value" : {
    "city1" : "Guaico Tamana",
    "city2" : "Mamon",
    "dist" : 0.0160000000000000014
  }
}
{
  "_id" : 14,
  "value" : {
    "city1" : "Kalgoorlie",
    "city2" : "Williamstown",
    "dist" : 0.0160000000000005343
  }
}
{
  "_id" : 190,
  "value" : {
    "city1" : "David",
```

```

        "city2" : "El Varital",
        "dist" : 0.016000000000005343
    }
}
{
    "_id" : 82,
    "value" : {
        "city1" : "Colombes",
        "city2" : "Courbevoic",
        "dist" : 0.0166000000000003945
    }
}
{
    "_id" : 195,
    "value" : {
        "city1" : "Las Pinas City",
        "city2" : "Parañaque",
        "dist" : 0.016700000000000016
    }
}
{
    "_id" : 43,
    "value" : {
        "city1" : "La Salle",
        "city2" : "Lachine",
        "dist" : 0.016999999999995907
    }
}
{
    "_id" : 59,
    "value" : {
        "city1" : "Curridabat",
        "city2" : "San Francisco De Dos Rios",
        "dist" : 0.016999999999995907
    }
}
{
    "_id" : 104,
    "value" : {
        "city1" : "Linden",
        "city2" : "MACKENZIE",
        "dist" : 0.016999999999995907
    }
}
{
    "_id" : 226,
    "value" : {
        "city1" : "Badalona",
        "city2" : "Manresa",
        "dist" : 0.016999999999999904
    }
}
{
    "_id" : 114,
    "value" : {
        "city1" : "Karawaci",
        "city2" : "Tangerang",
        "dist" : 0.017000000000000348
    }
}
{
    "_id" : 122,
    "value" : {
        "city1" : "Kushiro",
        "city2" : "Kawanishi",
        "dist" : 0.0170000000000003013
    }
}
{
    "_id" : 183,
    "value" : {
        "city1" : "Burnt Pine",
        "city2" : "Kingston",
        "dist" : 0.01999999999999574
    }
}
{
    "_id" : 134,
    "value" : {
        "city1" : "Al Sharq",
        "city2" : "Kuwait",
        "dist" : 0.02017176244158732
    }
}
}

```

```
{
  "_id" : 91,
  "value" : {
    "city1" : "Mannheim",
    "city2" : "Ludwigshafen Am Rhein",
    "dist" : 0.020591260281973632
  }
}
{
  "_id" : 194,
  "value" : {
    "city1" : "Arequipa",
    "city2" : "Cayma",
    "dist" : 0.021633307652784758
  }
}
{
  "_id" : 159,
  "value" : {
    "city1" : "Cancun",
    "city2" : "Puerto Juarez",
    "dist" : 0.022627416997972053
  }
}
{
  "_id" : 221,
  "value" : {
    "city1" : "Sentjost",
    "city2" : "Naklo",
    "dist" : 0.02300000000000324
  }
}
{
  "_id" : 109,
  "value" : {
    "city1" : "Fanling",
    "city2" : "Sheung Shui",
    "dist" : 0.023345235059851033
  }
}
{
  "_id" : 193,
  "value" : {
    "city1" : "Limpio",
    "city2" : "Mariano Roque Alonso",
    "dist" : 0.02334523505985332
  }
}
{
  "_id" : 149,
  "value" : {
    "city1" : "Kuala Lumpur",
    "city2" : "Sentul",
    "dist" : 0.023345235059854533
  }
}
{
  "_id" : 234,
  "value" : {
    "city1" : "Lausanne",
    "city2" : "Pully",
    "dist" : 0.023345235059855904
  }
}
{
  "_id" : 175,
  "value" : {
    "city1" : "Bilthoven",
    "city2" : "De Bilt",
    "dist" : 0.02334523505986142
  }
}
{
  "_id" : 144,
  "value" : {
    "city1" : "Strassen",
    "city2" : "Bertrange",
    "dist" : 0.02339850422569853
  }
}
{
  "_id" : 48,
  "value" : {
    "city1" : "Recreo",
```

```

        "city2" : "Valparaiso",
        "dist" : 0.02343074902772085
    }
}
{
    "_id" : 21,
    "value" : {
        "city1" : "Christchurch",
        "city2" : "Warrens",
        "dist" : 0.024041630560339342
    }
}
{
    "_id" : 24,
    "value" : {
        "city1" : "Woluwe-Saint-Lambert",
        "city2" : "Woluwe-Saint-Pierre",
        "dist" : 0.024041630560344366
    }
}
{
    "_id" : 53,
    "value" : {
        "city1" : "Bogota",
        "city2" : "Santafé de Bogotá",
        "dist" : 0.025603351343134295
    }
}
{
    "_id" : 178,
    "value" : {
        "city1" : "North Shore",
        "city2" : "Takapuna",
        "dist" : 0.027202941017479578
    }
}
{
    "_id" : 259,
    "value" : {
        "city1" : "Lagunillas",
        "city2" : "San Cristobal",
        "dist" : 0.031240998703627045
    }
}
{
    "_id" : 119,
    "value" : {
        "city1" : "Cardano al Campo",
        "city2" : "Gallarate",
        "dist" : 0.032536977425690346
    }
}
{
    "_id" : 105,
    "value" : {
        "city1" : "Diquini",
        "city2" : "MARTISSANT",
        "dist" : 0.033000000000000125
    }
}
{
    "_id" : 179,
    "value" : {
        "city1" : "Diriamba",
        "city2" : "Jinotepe",
        "dist" : 0.033000000000000125
    }
}
{
    "_id" : 233,
    "value" : {
        "city1" : "Holmgård",
        "city2" : "Huddinge",
        "dist" : 0.033000000000000125
    }
}
{
    "_id" : 18,
    "value" : {
        "city1" : "Al Manamah",
        "city2" : "Muharraq",
        "dist" : 0.035805027579939586
    }
}
}

```

```

{
  "_id" : 15,
  "value" : {
    "city1" : "Neudörf",
    "city2" : "Wiener Neustadt",
    "dist" : 0.03712142238654041
  }
}
{
  "_id" : 33,
  "value" : {
    "city1" : "Praia Grande",
    "city2" : "São Vicente",
    "dist" : 0.03712142238654041
  }
}
{
  "_id" : 185,
  "value" : {
    "city1" : "Nydalen",
    "city2" : "Oslo",
    "dist" : 0.037121422386542036
  }
}
{
  "_id" : 100,
  "value" : {
    "city1" : "SAN MIGUEL PETAPA",
    "city2" : "VILLA CANALES",
    "dist" : 0.038013155617488865
  }
}
{
  "_id" : 112,
  "value" : {
    "city1" : "Hafnarfjörður",
    "city2" : "Kopavogur",
    "dist" : 0.04362407592144397
  }
}
{
  "_id" : 224,
  "value" : {
    "city1" : "Bellville",
    "city2" : "Kuils River",
    "dist" : 0.04738143096193118
  }
}
{
  "_id" : 95,
  "value" : {
    "city1" : "Athens",
    "city2" : "Peristéion",
    "dist" : 0.04738143096193373
  }
}
{
  "_id" : 143,
  "value" : {
    "city1" : "Pagegiai",
    "city2" : "Panemune",
    "dist" : 0.049999999999999716
  }
}
{
  "_id" : 174,
  "value" : {
    "city1" : "Kathmandu",
    "city2" : "Lalitpur",
    "dist" : 0.05249761899362567
  }
}
{
  "_id" : 236,
  "value" : {
    "city1" : "Tainan",
    "city2" : "Yung Kang City",
    "dist" : 0.06580091184778554
  }
}
{
  "_id" : 29,
  "value" : {
    "city1" : "Corioco",

```

```

        "city2" : "Yolosa",
        "dist" : 0.065999999999999895
    }
}
{
    "_id" : 256,
    "value" : {
        "city1" : "Maldonado",
        "city2" : "Punta del Este",
        "dist" : 0.067000000000000017
    }
}
{
    "_id" : 252,
    "value" : {
        "city1" : "Ajman",
        "city2" : "Sharjah ",
        "dist" : 0.06811754546370562
    }
}
{
    "_id" : 64,
    "value" : {
        "city1" : "Blansko",
        "city2" : "Usti nad Labem",
        "dist" : 0.07468600939935206
    }
}
{
    "_id" : 187,
    "value" : {
        "city1" : "Khewra",
        "city2" : "Pind Dadan Khan",
        "dist" : 0.07468600939935206
    }
}
{
    "_id" : 17,
    "value" : {
        "city1" : "Freetown",
        "city2" : "Old Bight",
        "dist" : 0.07468600939935845
    }
}
{
    "_id" : 271,
    "value" : {
        "city1" : "Kosovo Polje",
        "city2" : "Pristina",
        "dist" : 0.07481310045707332
    }
}
{
    "_id" : 213,
    "value" : {
        "city1" : "Al Khobar",
        "city2" : "Dhahran",
        "dist" : 0.07905694150420499
    }
}
{
    "_id" : 27,
    "value" : {
        "city1" : "Hamilton",
        "city2" : "Somerset",
        "dist" : 0.08409518416650377
    }
}
{
    "_id" : 71,
    "value" : {
        "city1" : "Giza",
        "city2" : "Cairo",
        "dist" : 0.08766413177577416
    }
}
{
    "_id" : 239,
    "value" : {
        "city1" : "Non Buri ",
        "city2" : "Bangkok",
        "dist" : 0.0896939239859617
    }
}
}

```

```
{
  "_id" : 157,
  "value" : {
    "city1" : "Quatre Bornes",
    "city2" : "Port Louis",
    "dist" : 0.0933857590856341
  }
}
{
  "_id" : 88,
  "value" : {
    "city1" : "Banjul",
    "city2" : "Kanifing",
    "dist" : 0.0980815986819128
  }
}
{
  "_id" : 36,
  "value" : {
    "city1" : "Bandar Seri Begawan",
    "city2" : "Jerudong",
    "dist" : 0.10666770832825705
  }
}
{
  "_id" : 117,
  "value" : {
    "city1" : "Dublin",
    "city2" : "Tallaght",
    "dist" : 0.1118033988749879
  }
}
{
  "_id" : 9,
  "value" : {
    "city1" : "Saint Johns",
    "city2" : "Falmouth",
    "dist" : 0.12037026210821469
  }
}
{
  "_id" : 203,
  "value" : {
    "city1" : "Lermontov",
    "city2" : "Pyatigorsk",
    "dist" : 0.12044085685513818
  }
}
{
  "_id" : 197,
  "value" : {
    "city1" : "Gliwice",
    "city2" : "Zabrze",
    "dist" : 0.12088010589009197
  }
}
{
  "_id" : 108,
  "value" : {
    "city1" : "Progreso",
    "city2" : "La Lima",
    "dist" : 0.12156479753613297
  }
}
{
  "_id" : 81,
  "value" : {
    "city1" : "Tapiola",
    "city2" : "Vantaa",
    "dist" : 0.1314193669137066
  }
}
{
  "_id" : 261,
  "value" : {
    "city1" : "Charlotte Amalie",
    "city2" : "Cruz Bay",
    "dist" : 0.13144930581786962
  }
}
{
  "_id" : 111,
  "value" : {
    "city1" : "Kecskemet",
```



```
        "city2" : "Nagykoros",
        "dist" : 0.13300000000000267
    }
}
{
    "_id" : 140,
    "value" : {
        "city1" : "Clay-Ashland",
        "city2" : "Monrovia",
        "dist" : 0.13763720427268214
    }
}
{
    "_id" : 220,
    "value" : {
        "city1" : "Piestany",
        "city2" : "Nove Mesto nad Vahom",
        "dist" : 0.14999999999999858
    }
}
{
    "_id" : 61,
    "value" : {
        "city1" : "Supetar",
        "city2" : "Omiš",
        "dist" : 0.15088074761214718
    }
}
{
    "_id" : 153,
    "value" : {
        "city1" : "Castletown",
        "city2" : "Peel",
        "dist" : 0.15743252522906526
    }
}
{
    "_id" : 245,
    "value" : {
        "city1" : "Carthage",
        "city2" : "Tunis",
        "dist" : 0.1584329511181317
    }
}
{
    "_id" : 251,
    "value" : {
        "city1" : "Donetsk",
        "city2" : "Makeevka",
        "dist" : 0.1702292571798415
    }
}
{
    "_id" : 274,
    "value" : {
        "city1" : "Harare",
        "city2" : "chitungwiza",
        "dist" : 0.17432441022415823
    }
}
{
    "_id" : 90,
    "value" : {
        "city1" : "Tbilisi",
        "city2" : "Mtskheta",
        "dist" : 0.17577613603672304
    }
}
{
    "_id" : 63,
    "value" : {
        "city1" : "Kyrenia",
        "city2" : "Nicosia",
        "dist" : 0.18200274723200943
    }
}
{
    "_id" : 70,
    "value" : {
        "city1" : "Otavalo",
        "city2" : "Ibarra",
        "dist" : 0.19023406634984552
    }
}
}
```

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{
  "_id" : 201,
  "value" : {
    "city1" : "Saint Paul",
    "city2" : "Saint-Denis",
    "dist" : 0.20351768964883651
  }
}
{
  "_id" : 75,
  "value" : {
    "city1" : "saue",
    "city2" : "Tallinn",
    "dist" : 0.20885641000457617
  }
}
{
  "_id" : 92,
  "value" : {
    "city1" : "Accra",
    "city2" : "Tema",
    "dist" : 0.21092415698539613
  }
}
{
  "_id" : 126,
  "value" : {
    "city1" : "Amman",
    "city2" : "Az Zarqa",
    "dist" : 0.21349004660639403
  }
}
{
  "_id" : 137,
  "value" : {
    "city1" : "Ligatne",
    "city2" : "Sigulda",
    "dist" : 0.21653868014744954
  }
}
{
  "_id" : 228,
  "value" : {
    "city1" : "Colombo",
    "city2" : "Gampaha",
    "dist" : 0.21795412361320127
  }
}
{
  "_id" : 11,
  "value" : {
    "city1" : "Vanadzor",
    "city2" : "Spitak",
    "dist" : 0.2200460179144342
  }
}
{
  "_id" : 200,
  "value" : {
    "city1" : "Al Wakra",
    "city2" : "Al-Rayyan",
    "dist" : 0.22161678636781992
  }
}
{
  "_id" : 26,
  "value" : {
    "city1" : "Cotonou",
    "city2" : "Porto-Novo",
    "dist" : 0.22703523955544888
  }
}
{
  "_id" : 72,
  "value" : {
    "city1" : "Tenancingo",
    "city2" : "San Antonio Los Ranchos",
    "dist" : 0.23120553626589554
  }
}
{
  "_id" : 260,
  "value" : {
    "city1" : "Ho Chi Minh City",

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        "city2" : "Bien Hoa",
        "dist" : 0.2499999999999943
    }
}
{
    "_id" : 202,
    "value" : {
        "city1" : "Cluj-Napoca",
        "city2" : "Turda",
        "dist" : 0.2710885464198019
    }
}
{
    "_id" : 67,
    "value" : {
        "city1" : "Marigot",
        "city2" : "Roseau",
        "dist" : 0.2785354914548595
    }
}
{
    "_id" : 171,
    "value" : {
        "city1" : "Swakopmund",
        "city2" : "Walvis Bay",
        "dist" : 0.2822095143683131
    }
}
{
    "_id" : 181,
    "value" : {
        "city1" : "Ile-Ife",
        "city2" : "Oshogbo",
        "dist" : 0.3000000000000007
    }
}
{
    "_id" : 232,
    "value" : {
        "city1" : "Mbabane",
        "city2" : "Manzini",
        "dist" : 0.30554804859465223
    }
}
{
    "_id" : 25,
    "value" : {
        "city1" : "Belmopan",
        "city2" : "San Ignacio",
        "dist" : 0.31820119421523463
    }
}
{
    "_id" : 37,
    "value" : {
        "city1" : "Balchik",
        "city2" : "Varna",
        "dist" : 0.3201562118716442
    }
}
{
    "_id" : 246,
    "value" : {
        "city1" : "Izmir",
        "city2" : "Manisa",
        "dist" : 0.33701335285118994
    }
}
{
    "_id" : 30,
    "value" : {
        "city1" : "Brcko",
        "city2" : "Tuzla",
        "dist" : 0.3647739025752786
    }
}
{
    "_id" : 129,
    "value" : {
        "city1" : "Kakamega",
        "city2" : "Kisumu",
        "dist" : 0.383
    }
}
}

```

```
{
  "_id" : 238,
  "value" : {
    "city1" : "Kilimanjaro",
    "city2" : "Morogoro",
    "dist" : 0.4031128874149288
  }
}
{
  "_id" : 41,
  "value" : {
    "city1" : "Phnom Penh",
    "city2" : "Prey Veng",
    "dist" : 0.40557243496075174
  }
}
{
  "_id" : 115,
  "value" : {
    "city1" : "Fasa",
    "city2" : "Jahrom",
    "dist" : 0.43353661898391155
  }
}
{
  "_id" : 146,
  "value" : {
    "city1" : "Skopje",
    "city2" : "Veles",
    "dist" : 0.4394963026010577
  }
}
{
  "_id" : 168,
  "value" : {
    "city1" : "Tangier",
    "city2" : "Tetouan",
    "dist" : 0.4861738372228591
  }
}
{
  "_id" : 42,
  "value" : {
    "city1" : "Douala",
    "city2" : "Limbe",
    "dist" : 0.5010878166549252
  }
}
{
  "_id" : 97,
  "value" : {
    "city1" : "St George's",
    "city2" : "Hillsborough",
    "dist" : 0.5116606394867611
  }
}
{
  "_id" : 176,
  "value" : {
    "city1" : "Oranjestad",
    "city2" : "Philipsburg",
    "dist" : 0.5522680508593641
  }
}
{
  "_id" : 80,
  "value" : {
    "city1" : "Nailuva",
    "city2" : "Suva",
    "dist" : 0.6116281550092378
  }
}
{
  "_id" : 116,
  "value" : {
    "city1" : "Fallujah",
    "city2" : "Baghdad",
    "dist" : 0.621718561730307
  }
}
{
  "_id" : 275,
  "value" : {
    "city1" : "Hebron",
```

```

        "city2" : "Gaza City",
        "dist" : 0.6242827884861201
    }
}
{
    "_id" : 38,
    "value" : {
        "city1" : "Yako",
        "city2" : "Ouahigouya",
        "dist" : 0.6339999999999997
    }
}
{
    "_id" : 250,
    "value" : {
        "city1" : "Jinja",
        "city2" : "Kampala",
        "dist" : 0.6380854174795096
    }
}
{
    "_id" : 62,
    "value" : {
        "city1" : "Holguin",
        "city2" : "Las Tunas",
        "dist" : 0.6920758628936452
    }
}
{
    "_id" : 165,
    "value" : {
        "city1" : "Darhan",
        "city2" : "Suhbaatar",
        "dist" : 0.7967188964747841
    }
}
{
    "_id" : 163,
    "value" : {
        "city1" : "Chisinau",
        "city2" : "Tiraspol",
        "dist" : 0.802153351922187
    }
}
{
    "_id" : 23,
    "value" : {
        "city1" : "Minsk",
        "city2" : "Molodechno",
        "dist" : 0.8294443923494809
    }
}
{
    "_id" : 3,
    "value" : {
        "city1" : "Oran",
        "city2" : "Mascara",
        "dist" : 0.8365004482963547
    }
}
{
    "_id" : 20,
    "value" : {
        "city1" : "Comilla",
        "city2" : "Dhaka",
        "dist" : 0.8367855161270389
    }
}
{
    "_id" : 191,
    "value" : {
        "city1" : "Goroka",
        "city2" : "Madang",
        "dist" : 0.9611685596189683
    }
}
{
    "_id" : 55,
    "value" : {
        "city1" : "Likasi",
        "city2" : "Lubumbashi",
        "dist" : 1.0046651183354567
    }
}
}

```

```
{
  "_id" : 56,
  "value" : {
    "city1" : "Pointe Noire",
    "city2" : "Kinsasa",
    "dist" : 1.0933078249056853
  }
}
{
  "_id" : 2,
  "value" : {
    "city1" : "Korce",
    "city2" : "Tirane",
    "dist" : 1.1860178118392657
  }
}
{
  "_id" : 235,
  "value" : {
    "city1" : "Al Ladhiqiyah",
    "city2" : "Hims",
    "dist" : 1.2194310148589813
  }
}
{
  "_id" : 270,
  "value" : {
    "city1" : "Ibb",
    "city2" : "Sanaa",
    "dist" : 1.3882074772886075
  }
}
{
  "_id" : 240,
  "value" : {
    "city1" : "Lome",
    "city2" : "Atakpame",
    "dist" : 1.4038878160308972
  }
}
{
  "_id" : 6,
  "value" : {
    "city1" : "Benguela",
    "city2" : "Sumbe",
    "dist" : 1.4439615645854298
  }
}
{
  "_id" : 214,
  "value" : {
    "city1" : "Dakar",
    "city2" : "Kaolack",
    "dist" : 1.4605632475178878
  }
}
{
  "_id" : 39,
  "value" : {
    "city1" : "Moulmein",
    "city2" : "Yangon",
    "dist" : 1.493065638208844
  }
}
{
  "_id" : 218,
  "value" : {
    "city1" : "Bo",
    "city2" : "Freetown",
    "dist" : 1.568367622721153
  }
}
{
  "_id" : 60,
  "value" : {
    "city1" : "Abidjan",
    "city2" : "Yamoussoukro",
    "dist" : 1.9525624189766635
  }
}
{
  "_id" : 128,
  "value" : {
    "city1" : "Astana",
```

```
        "city2" : "Karaganda",
        "dist" : 2.1004687572063494
    }
}
{
    "_id" : 148,
    "value" : {
        "city1" : "Lilongwe",
        "city2" : "Blantyre",
        "dist" : 2.1728067102252773
    }
}
{
    "_id" : 237,
    "value" : {
        "city1" : "Dushanbe",
        "city2" : "Khujand",
        "dist" : 2.223708838854585
    }
}
{
    "_id" : 44,
    "value" : {
        "city1" : "Praia",
        "city2" : "Mindelo",
        "dist" : 2.462609388433334
    }
}
{
    "_id" : 257,
    "value" : {
        "city1" : "Bukhara",
        "city2" : "Samarkand",
        "dist" : 2.5338906843034796
    }
}
{
    "_id" : 273,
    "value" : {
        "city1" : "Kitwe",
        "city2" : "Lusaka",
        "dist" : 2.601324470341983
    }
}
{
    "_id" : 151,
    "value" : {
        "city1" : "Bamako",
        "city2" : "Gao",
        "dist" : 2.9154759474226504
    }
}
{
    "_id" : 1,
    "value" : {
        "city1" : "Kabul",
        "city2" : "Mazar-e Sharif",
        "dist" : 3.0173461849777947
    }
}
{
    "_id" : 223,
    "value" : {
        "city1" : "Muqdisho",
        "city2" : "Borama",
        "dist" : 3.1381806831347365
    }
}
{
    "_id" : 147,
    "value" : {
        "city1" : "Nosy-Be",
        "city2" : "Tulear",
        "dist" : 3.7968195018989292
    }
}
{
    "_id" : 135,
    "value" : {
        "city1" : "Bishkek",
        "city2" : "Karakol",
        "dist" : 3.8227789486184114
    }
}
}
```

```

{
  "_id" : 76,
  "value" : {
    "city1" : "Axum",
    "city2" : "Addis Ababa",
    "dist" : 5.10002833325463
  }
}
{
  "_id" : 229,
  "value" : {
    "city1" : "Khartoum",
    "city2" : "Port Sudan",
    "dist" : 6.181634156919997
  }
}
{
  "_id" : 96,
  "value" : {
    "city1" : "Nuuk",
    "city2" : "Upernavik",
    "dist" : 9.679723544089475
  }
}
{
  "_id" : 169,
  "value" : {
    "city1" : "Maputo",
    "city2" : "Nampula",
    "dist" : 12.736202613024027
  }
}
{
  "_id" : 74,
  "value" : {
    "city1" : "Taiping",
    "city2" : "Asmara",
    "dist" : 41.84351058407982
  }
}
{
  "_id" : 217,
  "value" : {
    "city1" : "Victoria",
    "city2" : "Anse aux Pins",
    "dist" : 78.71779796461789
  }
}
{
  "_id" : 57,
  "value" : {
    "city1" : "Avarua",
    "city2" : "Rarotonga",
    "dist" : 161.16741075353912
  }
}
{
  "_id" : 154,
  "value" : {
    "city1" : "Kwajalein",
    "city2" : "Majuro",
    "dist" : 171.53000521483116
  }
}
{
  "_id" : 8,
  "value" : {
    "city1" : "Molodesjnaja",
    "city2" : "McMurdo Station",
    "dist" : 183.962470629202
  }
}
2.
{
  "_id" : 203,
  "value" : {
    "city1" : "Chukchi",
    "city2" : "Provideniya",
    "dist" : 350.7831919833104
  }
}
{
  "_id" : 113,
  "value" : {

```



```
        "city1" : "Rampur",
        "city2" : "Noida",
        "dist" : 349.06541908327154
    }
}
{
    "_id" : 8,
    "value" : {
        "city1" : "Molodesjnaja",
        "city2" : "McMurdo Station",
        "dist" : 183.962470629202
    }
}
{
    "_id" : 154,
    "value" : {
        "city1" : "Kwajalein",
        "city2" : "Majuro",
        "dist" : 171.53000521483116
    }
}
{
    "_id" : 57,
    "value" : {
        "city1" : "Avarua",
        "city2" : "Rarotonga",
        "dist" : 161.16741075353912
    }
}
{
    "_id" : 99,
    "value" : {
        "city1" : "Hagatna",
        "city2" : "Yigo",
        "dist" : 145.51674182718634
    }
}
{
    "_id" : 114,
    "value" : {
        "city1" : "Nusa Dua",
        "city2" : "Jayapura",
        "dist" : 140.72279875343582
    }
}
{
    "_id" : 49,
    "value" : {
        "city1" : "Alar",
        "city2" : "Hulin",
        "dist" : 140.6489185489885
    }
}
{
    "_id" : 133,
    "value" : {
        "city1" : "Pusan-Kuso-2-dong",
        "city2" : "Kangnung",
        "dist" : 134.30397078642164
    }
}
{
    "_id" : 236,
    "value" : {
        "city1" : "Panchiao",
        "city2" : "Taipei",
        "dist" : 123.99980963291839
    }
}
{
    "_id" : 159,
    "value" : {
        "city1" : "Ciudad de México",
        "city2" : "Tijuana",
        "dist" : 121.45523610779405
    }
}
{
    "_id" : 149,
    "value" : {
        "city1" : "Cyberjaya",
        "city2" : "Sandakan",
        "dist" : 118.2609385131033
    }
}
```

```
}
{
  "_id" : 239,
  "value" : {
    "city1" : "Laem Chabang",
    "city2" : "Nakorn Panom",
    "dist" : 106.21787556244946
  }
}
{
  "_id" : 20,
  "value" : {
    "city1" : "Comilla",
    "city2" : "Saginaw",
    "dist" : 94.16656784655582
  }
}
{
  "_id" : 96,
  "value" : {
    "city1" : "Kangerlussuaq",
    "city2" : "Upernavik",
    "dist" : 91.93044435876507
  }
}
{
  "_id" : 43,
  "value" : {
    "city1" : "St. John's",
    "city2" : "Beaver Creek",
    "dist" : 89.38051871073473
  }
}
{
  "_id" : 59,
  "value" : {
    "city1" : "Playas del Coco",
    "city2" : "Barra Del Colorado",
    "dist" : 86.34693103984647
  }
}
{
  "_id" : 217,
  "value" : {
    "city1" : "Victoria",
    "city2" : "Anse aux Pins",
    "dist" : 78.71779796461789
  }
}
{
  "_id" : 251,
  "value" : {
    "city1" : "Lugansk",
    "city2" : "Ternopil",
    "dist" : 62.496706937245904
  }
}
{
  "_id" : 252,
  "value" : {
    "city1" : "Garhoud",
    "city2" : "Al Fujayrah",
    "dist" : 61.6904571226377
  }
}
{
  "_id" : 253,
  "value" : {
    "city1" : "Lerwick",
    "city2" : "Ascot",
    "dist" : 60.16687686759219
  }
}
{
  "_id" : 104,
  "value" : {
    "city1" : "Jonestown",
    "city2" : "Charity",
    "dist" : 59.065387495554454
  }
}
{
  "_id" : 116,
  "value" : {
```

```
        "city1" : "As Sulaymaniyah",
        "city2" : "Nineveh",
        "dist" : 57.6819761884941
    }
}
{
    "_id" : 134,
    "value" : {
        "city1" : "Khalidia",
        "city2" : "Salmiya",
        "dist" : 56.31860555802141
    }
}
{
    "_id" : 91,
    "value" : {
        "city1" : "Kornwestheim",
        "city2" : "Stralsund",
        "dist" : 55.857855311495804
    }
}
{
    "_id" : 202,
    "value" : {
        "city1" : "Borsa",
        "city2" : "satu mare",
        "dist" : 54.73310414182627
    }
}
{
    "_id" : 111,
    "value" : {
        "city1" : "Nyíregyháza",
        "city2" : "Székesfehérvár",
        "dist" : 52.63867959020249
    }
}
{
    "_id" : 223,
    "value" : {
        "city1" : "Bereeda",
        "city2" : "Galkacyo",
        "dist" : 52.40729910995223
    }
}
{
    "_id" : 82,
    "value" : {
        "city1" : "Hondschoote",
        "city2" : "Fontenay-Le-Compte",
        "dist" : 51.0483905524944
    }
}
{
    "_id" : 48,
    "value" : {
        "city1" : "Atamu Tekena",
        "city2" : "Puerto Williams",
        "dist" : 50.200421561974956
    }
}
{
    "_id" : 118,
    "value" : {
        "city1" : "Rechovot",
        "city2" : "Kiryat Shemoneh",
        "dist" : 48.661329872908325
    }
}
{
    "_id" : 234,
    "value" : {
        "city1" : "Bienne",
        "city2" : "Kreuzlingen",
        "dist" : 48.52679660764761
    }
}
{
    "_id" : 119,
    "value" : {
        "city1" : "Belmonte Mezzagno",
        "city2" : "Cortina d'Ampezzo",
        "dist" : 48.095711835879925
    }
}
```

```

}
{
  "_id" : 198,
  "value" : {
    "city1" : "Vila do Conde",
    "city2" : "Horta",
    "dist" : 48.006674306808634
  }
}
{
  "_id" : 224,
  "value" : {
    "city1" : "East london",
    "city2" : "Centurion",
    "dist" : 43.24971650774141
  }
}
{
  "_id" : 74,
  "value" : {
    "city1" : "Taiping",
    "city2" : "Asmara",
    "dist" : 41.84351058407982
  }
}
{
  "_id" : 14,
  "value" : {
    "city1" : "Byron Bay",
    "city2" : "Shark Bay",
    "dist" : 40.16699782159477
  }
}
{
  "_id" : 33,
  "value" : {
    "city1" : "Rio Branco",
    "city2" : "Itamaraca",
    "dist" : 38.39565546704992
  }
}
{
  "_id" : 10,
  "value" : {
    "city1" : "San Rafael",
    "city2" : "Ushuaia",
    "dist" : 30.929864031385584
  }
}
{
  "_id" : 128,
  "value" : {
    "city1" : "Oral",
    "city2" : "Semipalatinsk",
    "dist" : 28.914152555452837
  }
}
{
  "_id" : 122,
  "value" : {
    "city1" : "Hirara",
    "city2" : "Nemuro",
    "dist" : 27.487489681671548
  }
}
{
  "_id" : 185,
  "value" : {
    "city1" : "Vadsø",
    "city2" : "Haugesund",
    "dist" : 26.712943716483213
  }
}
{
  "_id" : 226,
  "value" : {
    "city1" : "Los Llanos De Aridane",
    "city2" : "Palafugell",
    "dist" : 24.89642098776449
  }
}
{
  "_id" : 165,
  "value" : {

```

```

        "city1" : "Choibalsan",
        "city2" : "Hovd",
        "dist" : 23.237723898867557
    }
}
{
    "_id" : 115,
    "value" : {
        "city1" : "Orumiyeh",
        "city2" : "Zahedan",
        "dist" : 17.708984979382638
    }
}
{
    "_id" : 233,
    "value" : {
        "city1" : "Falsterbo",
        "city2" : "Karesuando",
        "dist" : 16.244044724144292
    }
}
{
    "_id" : 246,
    "value" : {
        "city1" : "Izmir",
        "city2" : "Van",
        "dist" : 16.23321218982861
    }
}
{
    "_id" : 53,
    "value" : {
        "city1" : "Leticia",
        "city2" : "Riohacha",
        "dist" : 15.977893759817032
    }
}
{
    "_id" : 55,
    "value" : {
        "city1" : "Lubumbashi",
        "city2" : "Isiro",
        "dist" : 14.444580938192702
    }
}
{
    "_id" : 187,
    "value" : {
        "city1" : "Karachi",
        "city2" : "Hunza",
        "dist" : 13.723031334220583
    }
}
{
    "_id" : 181,
    "value" : {
        "city1" : "Abuja",
        "city2" : "Kaduna",
        "dist" : 12.887479544115676
    }
}
{
    "_id" : 194,
    "value" : {
        "city1" : "Iquitos",
        "city2" : "Camana",
        "dist" : 12.867294082284747
    }
}
{
    "_id" : 169,
    "value" : {
        "city1" : "Maputo",
        "city2" : "Nampula",
        "dist" : 12.736202613024027
    }
}
{
    "_id" : 70,
    "value" : {
        "city1" : "Puerto Ayora",
        "city2" : "Tulcan",
        "dist" : 12.694979322551095
    }
}

```

```
}
{
  "_id" : 195,
  "value" : {
    "city1" : "Kalibo",
    "city2" : "Bacarra",
    "dist" : 12.619429464123959
  }
}
{
  "_id" : 178,
  "value" : {
    "city1" : "Invercargill",
    "city2" : "Russell",
    "dist" : 12.538021295244311
  }
}
{
  "_id" : 140,
  "value" : {
    "city1" : "Turnersville",
    "city2" : "Monrovia",
    "dist" : 12.51306301430629
  }
}
{
  "_id" : 147,
  "value" : {
    "city1" : "Madagascar",
    "city2" : "Tulear",
    "dist" : 12.419837153924364
  }
}
{
  "_id" : 213,
  "value" : {
    "city1" : "Jeddah",
    "city2" : "Ras Tanura",
    "dist" : 12.115380348961393
  }
}
{
  "_id" : 259,
  "value" : {
    "city1" : "Machiques",
    "city2" : "Margarita",
    "dist" : 11.789304177940277
  }
}
{
  "_id" : 29,
  "value" : {
    "city1" : "Trinidad",
    "city2" : "Yacuiba",
    "dist" : 11.54770059362469
  }
}
{
  "_id" : 81,
  "value" : {
    "city1" : "Mariehamn",
    "city2" : "Salo",
    "dist" : 10.635548363859762
  }
}
{
  "_id" : 260,
  "value" : {
    "city1" : "Hanoi",
    "city2" : "Ho Chi Minh City",
    "dist" : 10.315404887836445
  }
}
{
  "_id" : 112,
  "value" : {
    "city1" : "Patreksfjörður",
    "city2" : "Egilsstaðir",
    "dist" : 9.576242085494707
  }
}
{
  "_id" : 95,
  "value" : {
```

```

        "city1" : "Kerkira",
        "city2" : "Rhodes",
        "dist" : 8.903742297483682
    }
}
{
    "_id" : 168,
    "value" : {
        "city1" : "Oujda",
        "city2" : "Taфраout",
        "dist" : 8.870512048354367
    }
}
{
    "_id" : 197,
    "value" : {
        "city1" : "Torun",
        "city2" : "Szczecin",
        "dist" : 8.810135583519697
    }
}
{
    "_id" : 257,
    "value" : {
        "city1" : "Urgench",
        "city2" : "Tashkent",
        "dist" : 8.620149534665854
    }
}
{
    "_id" : 3,
    "value" : {
        "city1" : "Oran",
        "city2" : "Annaba",
        "dist" : 8.495467144307016
    }
}
{
    "_id" : 176,
    "value" : {
        "city1" : "Willemstad",
        "city2" : "Philipsburg",
        "dist" : 8.356101309223101
    }
}
{
    "_id" : 6,
    "value" : {
        "city1" : "Lubango",
        "city2" : "Luanda",
        "dist" : 7.976476540428111
    }
}
{
    "_id" : 151,
    "value" : {
        "city1" : "Tombouctou",
        "city2" : "Gao",
        "dist" : 7.927419378334919
    }
}
{
    "_id" : 238,
    "value" : {
        "city1" : "Dar Es Salaam",
        "city2" : "Mwanza",
        "dist" : 7.6867924389825975
    }
}
{
    "_id" : 17,
    "value" : {
        "city1" : "Matthew Town",
        "city2" : "Freeport",
        "dist" : 7.516713244497227
    }
}
{
    "_id" : 71,
    "value" : {
        "city1" : "Marsa Alam",
        "city2" : "Alexandria",
        "dist" : 7.331542867637071
    }
}

```

```

}
{
  "_id" : 171,
  "value" : {
    "city1" : "Walvis Bay",
    "city2" : "Rundu",
    "dist" : 7.275937671530726
  }
}
{
  "_id" : 15,
  "value" : {
    "city1" : "Gänserndorf",
    "city2" : "Götzis",
    "dist" : 7.172467427601189
  }
}
{
  "_id" : 1,
  "value" : {
    "city1" : "Herat",
    "city2" : "Kabul",
    "dist" : 6.98542375235748
  }
}
{
  "_id" : 274,
  "value" : {
    "city1" : "Mutare",
    "city2" : "Victoria Falls",
    "dist" : 6.911780667816365
  }
}
{
  "_id" : 129,
  "value" : {
    "city1" : "Mombasa",
    "city2" : "Kitale",
    "dist" : 6.888786395294894
  }
}
{
  "_id" : 23,
  "value" : {
    "city1" : "Brest",
    "city2" : "Mahilyow",
    "dist" : 6.8794688748478245
  }
}
{
  "_id" : 65,
  "value" : {
    "city1" : "Roenne",
    "city2" : "Lemvig",
    "dist" : 6.55010957541933
  }
}
{
  "_id" : 62,
  "value" : {
    "city1" : "Havana",
    "city2" : "Holguin",
    "dist" : 6.500940393512311
  }
}
{
  "_id" : 56,
  "value" : {
    "city1" : "Kinsasa",
    "city2" : "Brazzaville",
    "dist" : 6.256738527379901
  }
}
{
  "_id" : 191,
  "value" : {
    "city1" : "Mount Hagen",
    "city2" : "Hoskins",
    "dist" : 6.197045909140896
  }
}
{
  "_id" : 193,
  "value" : {

```



```

        "city1" : "Ciudad Del Este",
        "city2" : "Santa Maria",
        "dist" : 6.185466837676844
    }
}
{
    "_id" : 229,
    "value" : {
        "city1" : "Khartoum",
        "city2" : "Port Sudan",
        "dist" : 6.181634156919997
    }
}
{
    "_id" : 235,
    "value" : {
        "city1" : "Qamishly",
        "city2" : "Damascus",
        "dist" : 6.063480848489587
    }
}
{
    "_id" : 92,
    "value" : {
        "city1" : "Kumasi",
        "city2" : "Bolgatanga",
        "dist" : 6.059767157242924
    }
}
{
    "_id" : 64,
    "value" : {
        "city1" : "Frydek-Mistek",
        "city2" : "Cheb",
        "dist" : 5.978345256005207
    }
}
{
    "_id" : 143,
    "value" : {
        "city1" : "Neringa",
        "city2" : "Turmantas",
        "dist" : 5.418874421870283
    }
}
{
    "_id" : 61,
    "value" : {
        "city1" : "Pula",
        "city2" : "Sotin",
        "dist" : 5.264590107501245
    }
}
{
    "_id" : 37,
    "value" : {
        "city1" : "Blagoevgrad",
        "city2" : "Balchik",
        "dist" : 5.256851624308983
    }
}
{
    "_id" : 76,
    "value" : {
        "city1" : "Axum",
        "city2" : "Addis Ababa",
        "dist" : 5.10002833325463
    }
}
{
    "_id" : 256,
    "value" : {
        "city1" : "Artigas",
        "city2" : "Carmelo",
        "dist" : 5.072400319375433
    }
}
{
    "_id" : 190,
    "value" : {
        "city1" : "Puerto Armuelles",
        "city2" : "Concepcion",
        "dist" : 5.006681136241849
    }
}

```

```

}
{
  "_id" : 270,
  "value" : {
    "city1" : "Mukalla",
    "city2" : "Sanaa",
    "dist" : 4.992634675199057
  }
}
{
  "_id" : 271,
  "value" : {
    "city1" : "Obrenovac",
    "city2" : "Sombor",
    "dist" : 4.541444924250432
  }
}
{
  "_id" : 39,
  "value" : {
    "city1" : "Taunggyi",
    "city2" : "Moulmein",
    "dist" : 4.3236888151207165
  }
}
{
  "_id" : 220,
  "value" : {
    "city1" : "Bratislava",
    "city2" : "Bardejov",
    "dist" : 4.317319191350115
  }
}
{
  "_id" : 75,
  "value" : {
    "city1" : "Kuressaare",
    "city2" : "Tartu",
    "dist" : 4.1884710814329384
  }
}
{
  "_id" : 26,
  "value" : {
    "city1" : "Natitingou",
    "city2" : "Cotonou",
    "dist" : 4.10772990835571
  }
}
{
  "_id" : 137,
  "value" : {
    "city1" : "Ligatne",
    "city2" : "Liepaja",
    "dist" : 4.096064574686293
  }
}
{
  "_id" : 179,
  "value" : {
    "city1" : "San Rafael",
    "city2" : "Puerto Cabezas",
    "dist" : 4.095874631870467
  }
}
{
  "_id" : 117,
  "value" : {
    "city1" : "Wicklow",
    "city2" : "Clifden",
    "dist" : 4.003370041602451
  }
}
{
  "_id" : 175,
  "value" : {
    "city1" : "Sluis",
    "city2" : "Stadskanaal",
    "dist" : 3.9142872914491087
  }
}
{
  "_id" : 90,
  "value" : {

```

```

        "city1" : "Bat'umi",
        "city2" : "T'elavi",
        "dist" : 3.8438614855376927
    }
}
{
    "_id" : 135,
    "value" : {
        "city1" : "Bishkek",
        "city2" : "Karakol",
        "dist" : 3.8227789486184114
    }
}
{
    "_id" : 68,
    "value" : {
        "city1" : "Punta Cana",
        "city2" : "Pepillo Salcedo",
        "dist" : 3.5817900552656585
    }
}
{
    "_id" : 214,
    "value" : {
        "city1" : "Saint-Louis",
        "city2" : "Ziguinchor",
        "dist" : 3.457859019682556
    }
}
{
    "_id" : 24,
    "value" : {
        "city1" : "Arlon",
        "city2" : "Veurne",
        "dist" : 3.4406330812802466
    }
}
{
    "_id" : 240,
    "value" : {
        "city1" : "kara",
        "city2" : "Lome",
        "dist" : 3.418077383559361
    }
}
{
    "_id" : 41,
    "value" : {
        "city1" : "Battambang",
        "city2" : "Svay Rieng",
        "dist" : 3.290636564557072
    }
}
{
    "_id" : 108,
    "value" : {
        "city1" : "La Ceiba",
        "city2" : "Roatan",
        "dist" : 3.2123166095514315
    }
}
{
    "_id" : 126,
    "value" : {
        "city1" : "Aqaba",
        "city2" : "Irbid",
        "dist" : 3.1556332169629586
    }
}
{
    "_id" : 100,
    "value" : {
        "city1" : "PUERTO BARRIOS",
        "city2" : "Quezaltenango",
        "dist" : 3.048006725714366
    }
}
{
    "_id" : 245,
    "value" : {
        "city1" : "Djerba",
        "city2" : "Carthage",
        "dist" : 3.0256044024293716
    }
}

```

```

}
{
  "_id" : 228,
  "value" : {
    "city1" : "Colombo",
    "city2" : "Point Pedro",
    "dist" : 2.910575544458519
  }
}
{
  "_id" : 221,
  "value" : {
    "city1" : "Murska Sobota",
    "city2" : "Piran",
    "dist" : 2.8340255821004847
  }
}
{
  "_id" : 273,
  "value" : {
    "city1" : "Kitwe",
    "city2" : "Lusaka",
    "dist" : 2.601324470341983
  }
}
{
  "_id" : 42,
  "value" : {
    "city1" : "Mankon Bamenda",
    "city2" : "Yaounde",
    "dist" : 2.467965964108905
  }
}
{
  "_id" : 44,
  "value" : {
    "city1" : "Praia",
    "city2" : "Mindelo",
    "dist" : 2.462609388433334
  }
}
{
  "_id" : 30,
  "value" : {
    "city1" : "Bijeljina",
    "city2" : "Livno",
    "dist" : 2.4007151017977955
  }
}
{
  "_id" : 237,
  "value" : {
    "city1" : "Dushanbe",
    "city2" : "Khujand",
    "dist" : 2.223708838854585
  }
}
{
  "_id" : 148,
  "value" : {
    "city1" : "Lilongwe",
    "city2" : "Blantyre",
    "dist" : 2.1728067102252773
  }
}
{
  "_id" : 174,
  "value" : {
    "city1" : "Kathmandu",
    "city2" : "Dharan",
    "dist" : 2.162210905531657
  }
}
{
  "_id" : 120,
  "value" : {
    "city1" : "Harbour Head",
    "city2" : "Negril",
    "dist" : 2.065860111430589
  }
}
{
  "_id" : 38,
  "value" : {

```

```

        "city1" : "Ouagadougou",
        "city2" : "Bousse",
        "dist" : 1.991436928049693
    }
}
{
    "_id" : 25,
    "value" : {
        "city1" : "Orange Walk",
        "city2" : "Punta Gorda",
        "dist" : 1.9828234918923053
    }
}
{
    "_id" : 60,
    "value" : {
        "city1" : "Abidjan",
        "city2" : "Yamoussoukro",
        "dist" : 1.9525624189766635
    }
}
{
    "_id" : 199,
    "value" : {
        "city1" : "Culebra",
        "city2" : "Cabo Rojo",
        "dist" : 1.8576008720928177
    }
}
{
    "_id" : 243,
    "value" : {
        "city1" : "Erin",
        "city2" : "Charlottetown",
        "dist" : 1.6763618344498332
    }
}
{
    "_id" : 105,
    "value" : {
        "city1" : "Carrefour Shada",
        "city2" : "Jacmel",
        "dist" : 1.6326481556048762
    }
}
{
    "_id" : 72,
    "value" : {
        "city1" : "Santa Ana",
        "city2" : "San Miguel",
        "dist" : 1.5911480132281792
    }
}
{
    "_id" : 63,
    "value" : {
        "city1" : "Famagusta",
        "city2" : "Paphos",
        "dist" : 1.5742468040304232
    }
}
{
    "_id" : 218,
    "value" : {
        "city1" : "Bo",
        "city2" : "Freetown",
        "dist" : 1.568367622721153
    }
}
{
    "_id" : 186,
    "value" : {
        "city1" : "Sur",
        "city2" : "Ruwi",
        "dist" : 1.4166922742783679
    }
}
{
    "_id" : 2,
    "value" : {
        "city1" : "Korce",
        "city2" : "Tirane",
        "dist" : 1.1860178118392657
    }
}

```

```

}
{
  "_id" : 146,
  "value" : {
    "city1" : "Ohrid",
    "city2" : "Veles",
    "dist" : 1.155927765909272
  }
}
{
  "_id" : 11,
  "value" : {
    "city1" : "Gyumri",
    "city2" : "Yerevan",
    "dist" : 0.9049468989946328
  }
}
{
  "_id" : 36,
  "value" : {
    "city1" : "Kuala Belait",
    "city2" : "Bandar Seri Begawan",
    "dist" : 0.8077747210701756
  }
}
{
  "_id" : 163,
  "value" : {
    "city1" : "Chisinau",
    "city2" : "Tiraspol",
    "dist" : 0.802153351922187
  }
}
{
  "_id" : 138,
  "value" : {
    "city1" : "Tripoli",
    "city2" : "Beirut",
    "dist" : 0.6559885669735428
  }
}
{
  "_id" : 250,
  "value" : {
    "city1" : "Jinja",
    "city2" : "Kampala",
    "dist" : 0.6380854174795096
  }
}
{
  "_id" : 261,
  "value" : {
    "city1" : "Charlotte Amalie",
    "city2" : "Christiansted",
    "dist" : 0.6335447261243672
  }
}
{
  "_id" : 275,
  "value" : {
    "city1" : "Hebron",
    "city2" : "Gaza City",
    "dist" : 0.6242827884861201
  }
}
{
  "_id" : 80,
  "value" : {
    "city1" : "Nailuva",
    "city2" : "Suva",
    "dist" : 0.6116281550092378
  }
}
{
  "_id" : 144,
  "value" : {
    "city1" : "Clervaux",
    "city2" : "Dudelange",
    "dist" : 0.590620165588677
  }
}
{
  "_id" : 97,
  "value" : {

```

```

        "city1" : "St George's",
        "city2" : "Hillsborough",
        "dist" : 0.5116606394867611
    }
}
{
    "_id" : 200,
    "value" : {
        "city1" : "Doha",
        "city2" : "Al Wakra",
        "dist" : 0.47692032877619955
    }
}
{
    "_id" : 152,
    "value" : {
        "city1" : "Birzebbugia",
        "city2" : "Zebbug",
        "dist" : 0.381047241165712
    }
}
{
    "_id" : 153,
    "value" : {
        "city1" : "Castletown",
        "city2" : "ramsey",
        "dist" : 0.37172167007049917
    }
}
{
    "_id" : 109,
    "value" : {
        "city1" : "Chai Wan",
        "city2" : "Tin Shui Wai",
        "dist" : 0.3070651396690963
    }
}
{
    "_id" : 232,
    "value" : {
        "city1" : "Mbabane",
        "city2" : "Manzini",
        "dist" : 0.30554804859465223
    }
}
{
    "_id" : 67,
    "value" : {
        "city1" : "Marigot",
        "city2" : "Roseau",
        "dist" : 0.2785354914548595
    }
}
{
    "_id" : 219,
    "value" : {
        "city1" : "Tampines",
        "city2" : "Jurong",
        "dist" : 0.22749505489131353
    }
}
{
    "_id" : 27,
    "value" : {
        "city1" : "Saint George",
        "city2" : "Somerset",
        "dist" : 0.20774022239325363
    }
}
{
    "_id" : 201,
    "value" : {
        "city1" : "Saint Paul",
        "city2" : "Saint-Denis",
        "dist" : 0.20351768964883651
    }
}
{
    "_id" : 18,
    "value" : {
        "city1" : "Muharraq",
        "city2" : "Jasra",
        "dist" : 0.18866372200293755
    }
}

```

```

}
{
  "_id" : 21,
  "value" : {
    "city1" : "Bridgetown",
    "city2" : "Speightstown",
    "dist" : 0.15056227947264958
  }
}
{
  "_id" : 9,
  "value" : {
    "city1" : "Saint Johns",
    "city2" : "Falmouth",
    "dist" : 0.12037026210821469
  }
}
{
  "_id" : 88,
  "value" : {
    "city1" : "Banjul",
    "city2" : "Kanifing",
    "dist" : 0.0980815986819128
  }
}
{
  "_id" : 157,
  "value" : {
    "city1" : "Quatre Bornes",
    "city2" : "Port Louis",
    "dist" : 0.0933857590856341
  }
}
{
  "_id" : 183,
  "value" : {
    "city1" : "Burnt Pine",
    "city2" : "Kingston",
    "dist" : 0.019999999999999574
  }
}
{
  "_id" : 5,
  "value" : {
    "city1" : "Andorra La Vella",
    "city2" : "Escaldes",
    "dist" : 0.016000000000000014
  }
}
{
  "_id" : 93,
  "value" : {
    "city1" : "Algeciras",
    "city2" : "La Linea",
    "dist" : 0.003162277660168312
  }
}
3.
{
  "_id" : 113,
  "value" : {
    "cities" : [
      {
        "city1" : "Port Blair",
        "city2" : "Anantapur"
      },
      {
        "city1" : "Port Blair",
        "city2" : "Banganapalle"
      },
      {
        "city1" : "Port Blair",
        "city2" : "Bapatla"
      },
      {
        "city1" : "Port Blair",
        "city2" : "Bhimavaram"
      },
      {
        "city1" : "Port Blair",
        "city2" : "Kakinada"
      },
      {
        "city1" : "Port Blair",

```



```

        },
        {
            "city1": "Port Blair",
            "city2": "Bhubaneshwar"
        },
        {
            "city1": "Port Blair",
            "city2": "Ganjam"
        },
        {
            "city1": "Port Blair",
            "city2": "Puri"
        },
        {
            "city1": "Anantapur",
            "city2": "Bangnapalle"
        },
        {
            "city1": "Anantapur",
            "city2": "Bellary"
        },
        {
            "city1": "Bangnapalle",
            "city2": "Chapirevula"
        },
        {
            "city1": "Bapatla",
            "city2": "Chirala"
        },
        {
            "city1": "Chapirevula",
            "city2": "Nandyal"
        },
        {
            "city1": "Guntur",
            "city2": "New Guntur"
        },
        {
            "city1": "Kadapa",
            "city2": "Cuddapah"
        },
        {
            "city1": "Katni",
            "city2": "Murwara"
        }
    ],
    "dist": 0.001341640786496747
}
}
{
    "_id": 133,
    "value": {
        "cities": [
            {
                "city1": "Pusan-Kuso-2-dong",
                "city2": "Jeju"
            },
            {
                "city1": "Pusan-Kuso-2-dong",
                "city2": "Inchon"
            },
            {
                "city1": "Jeju",
                "city2": "Pohang"
            },
            {
                "city1": "Anyang",
                "city2": "Chonju"
            },
            {
                "city1": "Chongju",
                "city2": "Chungju"
            }
        ],
        "dist": 0.003026549190084301
    }
}
{
    "_id": 93,
    "value": {
        "cities": [
            {
                "city1": "Algeciras",

```

```

        "city2" : "La Linea"
      }
    ],
    "dist" : 0.003162277660168312
  }
}
{
  "_id" : 199,
  "value" : {
    "cities" : [
      {
        "city1" : "Aguadilla",
        "city2" : "Aibonito"
      },
      {
        "city1" : "Aguadilla",
        "city2" : "Arecibo"
      },
      {
        "city1" : "Aguadilla",
        "city2" : "Cabo Rojo"
      },
      {
        "city1" : "Aguadilla",
        "city2" : "Isabela"
      },
      {
        "city1" : "Aibonito",
        "city2" : "Barranquitas"
      },
      {
        "city1" : "Canovanas",
        "city2" : "Carolina"
      },
      {
        "city1" : "Guaynabo",
        "city2" : "Bayamon"
      },
      {
        "city1" : "Mayagüez",
        "city2" : "Santurce"
      }
    ],
    "dist" : 0.006082762530299229
  }
}
{
  "_id" : 219,
  "value" : {
    "cities" : [
      {
        "city1" : "Bedok",
        "city2" : "Bishan"
      },
      {
        "city1" : "Bedok",
        "city2" : "Pasir Ris"
      },
      {
        "city1" : "Bedok",
        "city2" : "Tampines"
      },
      {
        "city1" : "Bishan",
        "city2" : "Serangoon"
      },
      {
        "city1" : "Bishan",
        "city2" : "Toa Payoh"
      }
    ],
    "dist" : 0.01044030650891059
  }
}
{
  "_id" : 118,
  "value" : {
    "cities" : [
      {
        "city1" : "Beer-Sheva",
        "city2" : "Dimona"
      },
      {
        "city1" : "Beer-Sheva",

```

```

        },
        {
            "city1": "Ashdod",
            "city2": "Hatzor"
        },
        {
            "city1": "Ness Ziona",
            "city2": "Rehovot"
        },
        {
            "city1": "Petach Tikva",
            "city2": "Petah Tiqva"
        },
        {
            "city1": "Givatayim",
            "city2": "Ramat Gan"
        }
    ],
    "dist": 0.011180339887502127
}
{
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                "city2": "Arhus"
            }
        ],
        "dist": 0.011253888216966372
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}
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                "city2": "Bangor"
            },
            {
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                "city2": "Betws-y-Coed"
            },
            {
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                "city2": "Hawarden"
            },
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                "city2": "Alsagers Bank"
            },
            {
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                "city2": "Altrincham"
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                "city2": "Barnsley"
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                "city2": "Bradford"
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        {
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        {
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            "city2": "Stirling"
        },
        {
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            "city2": "Inverkeithing"
        },
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            "city2": "Motherwell"
        },
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            "city2": "Whitehead"
        },
        {
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            "city2": "Rustington"
        },
        {
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            "city2": "Barking"
        },
        {
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            "city2": "St Albans"
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            },
            {
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                "city2": "Muscat"
            },
            {
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                "city2": "Muscat"
            }
        ],
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}
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            {
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                "city2": "Bose"
            },
            {
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                "city2": "Madoi"
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            {
                "city1": "Alar",
                "city2": "Golmud"
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            {
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        },
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            "city2": "Bachu"
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        },
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            "city2": "Hefei"
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            "city2": "Huoshan"
        },
        {
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            "city2": "Napó"
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            "city2": "Huoshan"
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            "city2": "Taiyuan"
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            {
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                "city2": "Cospicua"
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            {
                "city1": "Attard",
                "city2": "Ghaxaq"
            },
            {
                "city1": "Attard",

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        {
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            "city2": "Mosta"
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        {
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            "city2": "Saint Venera"
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        {
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            "city2": "Tarxien"
        },
        {
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            "city2": "Valletta"
        },
        {
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            "city2": "Gudja"
        },
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            "city2": "Sliema"
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                "city2": "Tripoli"
            },
            {
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                "city2": "Beirut"
            }
        ],
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            {
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                "city2": "Dededo"
            },
            {
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                "city2": "Maite"
            },
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                "city2": "Tamuning"
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{
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                "city2": "Chapelton"
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            {
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        {
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            "city2": "Anchovy"
        },
        {
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            "city2": "Mount Carey"
        },
        {
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            "city2": "Passage Fort"
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                "city2": "Berazategui"
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            {
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                "city2": "Caseros"
            },
            {
                "city1": "Bahia Blanca",
                "city2": "Castelar"
            },
            {
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                "city2": "Chacabuco"
            },
            {
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                "city2": "Miramar"
            },
            {
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            },
            {
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                "city2": "Ezeiza"
            },
            {
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                "city2": "La Plata"
            },
            {
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                "city2": "Lomas De Zamora"
            },
            {
                "city1": "Caseros",
                "city2": "Castelar"
            },
            {
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                "city2": "Haedo"
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            {
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                "city2": "Ramos Mejia"
            },
            {
                "city1": "Caseros",

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        },
        {
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            {
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                "city2": "Rancho Arriba"
            },
            {
                "city1": "Tabara Arriba",
                "city2": "Yayas De Viajama"
            },
            {
                "city1": "Tamayo",
                "city2": "Ubilla"
            },
            {
                "city1": "Tamayo",
                "city2": "Vicente Noble"
            },
            {
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                "city2": "La Cienaga"
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                "city2": "Escaldes"
            }
        ],
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    }
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                "city2": "Santo João da Madeira"
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            {
                "city1": "Santo João da Madeira",
                "city2": "Matosinhos"
            },
            {
                "city1": "Santo João da Madeira",
                "city2": "Paços de brandão"
            },
            {
                "city1": "Lagoa",
                "city2": "Vila Real de Santo António"
            },
            {
                "city1": "Quarteira",
                "city2": "Vilamoura"
            },
            {
                "city1": "Amadora",

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        },
        {
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            "city2": "Oeiras"
        }
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            {
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            },
            {
                "city1": "Arima",
                "city2": "Carmichael"
            },
            {
                "city1": "Arima",
                "city2": "Cunaripa"
            },
            {
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                "city2": "Hasnalli"
            },
            {
                "city1": "Arima",
                "city2": "Brasso Seco Village"
            },
            {
                "city1": "Arima",
                "city2": "Tunapuna"
            },
            {
                "city1": "Charuma",
                "city2": "Biche"
            },
            {
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                "city2": "Plum Mitan"
            },
            {
                "city1": "Cuche",
                "city2": "Navet"
            },
            {
                "city1": "Cheeyou",
                "city2": "Sangre Grande"
            },
            {
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                "city2": "Mamon"
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                "city2": "Bacchus Marsh"
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                "city2": "Bayswater"
            },
            {
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                "city2": "Chelsea"
            },
            {
                "city1": "Ascot Vale",

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        },
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            "city2": "Deer Park"
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        {
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            "city2": "Hawthorn"
        },
        {
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            "city2": "Melbourne"
        },
        {
            "city1": "Dandenong",
            "city2": "Noble Park"
        },
        {
            "city1": "Melbourne",
            "city2": "South Yarra"
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                "city2": "Chiriqui"
            },
            {
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                "city2": "David"
            },
            {
                "city1": "Alanje",
                "city2": "San Mateo"
            },
            {
                "city1": "Bambito",
                "city2": "Cerro Punta"
            },
            {
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                "city2": "El Varital"
            }
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            {
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                "city2": "Bayonne"
            },
            {
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                "city2": "Biarritz"
            },
            {
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                "city2": "La Teste"
            },
            {
                "city1": "Saint-Germain-en-Laye",

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        "city2": "Courbevoie"
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            {
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                "city2": "Batangas"
            },
            {
                "city1": "Butuan City",
                "city2": "Naga City"
            },
            {
                "city1": "Butuan City",
                "city2": "Roxas"
            },
            {
                "city1": "Butuan City",
                "city2": "Lapu-Lapu City"
            },
            {
                "city1": "Butuan City",
                "city2": "Cagayan De Oro"
            },
            {
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                "city2": "Angeles City"
            },
            {
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                "city2": "Alaminos"
            },
            {
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                "city2": "Dagupan City"
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            {
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                "city2": "Tagaytay"
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            },
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            },
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                "city2": "Las Pinas City"
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                "city1": "Lapu-Lapu City",
                "city2": "Cebu"
            },
            {
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            "city2": "Parañaque"
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            {
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                "city2": "Aylmer"
            },
            {
                "city1": "Acton Vale",
                "city2": "Bagotville"
            },
            {
                "city1": "Acton Vale",
                "city2": "Baie Du Febvre"
            },
            {
                "city1": "Acton Vale",
                "city2": "Cowansville"
            },
            {
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                "city2": "Granby"
            },
            {
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                "city2": "Gatineau"
            },
            {
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                "city2": "Hull"
            },
            {
                "city1": "Aylmer",
                "city2": "Kanata"
            },
            {
                "city1": "Bagotville",
                "city2": "La Baie"
            },
            {
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                "city2": "Lachine"
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                "city2": "Heredia"
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                "city2": "Curridabat"
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            {
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                "city2": "MAHAICA"
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            {
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                "city2": "NEW AMSTERDAM"
            },
            {
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                "city2": "OREALLA"
            },
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                "city2": "SKELDON"
            },
            {
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                "city2": "Georgetown"
            },
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                "city2": "SPRINGLANDS"
            },
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                "city2": "MACKENZIE"
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            {
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                "city2": "Palma de Mallorca"
            },
            {
                "city1": "Ciudadela",
                "city2": "Petra"
            },
            {
                "city1": "Palma de Mallorca",
                "city2": "Petra"
            },
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                "city1": "Palma de Mallorca",
                "city2": "Valldemosa"
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                "city2": "Daganzo de Arriba"
            },
            {
                "city1": "Cadiz",

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            "city2" : "Manresa"
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            {
                "city1" : "Denpasar",
                "city2" : "Kuta"
            },
            {
                "city1" : "Depok",
                "city2" : "Yogyakarta"
            },
            {
                "city1" : "Karawaci",
                "city2" : "Tangerang"
            }
        ],
        "dist" : 0.0170000000000000348
    }
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                "city2" : "Anjo"
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            {
                "city1" : "Hachijojima",
                "city2" : "Kasugai"
            },
            {
                "city1" : "Hachijojima",
                "city2" : "Toyokawa"
            },
            {
                "city1" : "Hachijojima",
                "city2" : "Kitami"
            },
            {
                "city1" : "Anjo",
                "city2" : "Okazaki"
            },
            {
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                "city2" : "Yotsukaido"
            },
            {
                "city1" : "Funabashi",
                "city2" : "Kamagaya"
            },
            {
                "city1" : "Funabashi",
                "city2" : "Narashino"
            },
            {
                "city1" : "Imazu",
                "city2" : "Iwakuni"
            },
            {
                "city1" : "Kushiro",
                "city2" : "Kawanishi"
            }
        ],
        "dist" : 0.01700000000000003013
    }
}
{
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          "city2": "Kingston"
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    }
  }
}
{
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        "city2": "Khalidia"
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      {
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        "city2": "Kuwait"
      }
    ],
    "dist": 0.02017176244158732
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}
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        "city2": "Bad Urach"
      },
      {
        "city1": "Aalen",
        "city2": "Crailsheim"
      },
      {
        "city1": "Aalen",
        "city2": "Ellwangen"
      },
      {
        "city1": "Aalen",
        "city2": "Waiblingen"
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      {
        "city1": "Friedlheim",
        "city2": "Wiernsheim"
      },
      {
        "city1": "Gedern",
        "city2": "Witten"
      },
      {
        "city1": "Mannheim",
        "city2": "Ludwigshafen Am Rhein"
      }
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}
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        "city2": "Chimbote"
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        "city2": "Andahuaylas"
      },
      {
        "city1": "Caras",
        "city2": "Cajamarca"
      },
      {
        "city1": "Caras",

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        },
        {
            "city1": "Aplao",
            "city2": "Arequipa"
        },
        {
            "city1": "Aplao",
            "city2": "Camana"
        },
        {
            "city1": "Arequipa",
            "city2": "Cayma"
        }
    ],
    "dist": 0.021633307652784758
}
{
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        "cities": [
            {
                "city1": "Agua Prieta",
                "city2": "Caborca"
            },
            {
                "city1": "Agua Prieta",
                "city2": "Cananea"
            },
            {
                "city1": "Cananea",
                "city2": "Torreon"
            },
            {
                "city1": "Cumpas",
                "city2": "Nacozari De Garcia"
            },
            {
                "city1": "Empalme",
                "city2": "Guaymas"
            },
            {
                "city1": "Guadalajara",
                "city2": "Tlaquepaque"
            },
            {
                "city1": "Cancun",
                "city2": "Puerto Juarez"
            }
        ],
        "dist": 0.022627416997972053
    }
}
{
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    "value": {
        "cities": [
            {
                "city1": "Celje",
                "city2": "Velenje"
            },
            {
                "city1": "Celje",
                "city2": "Hrastnik"
            },
            {
                "city1": "Sentjost",
                "city2": "Kranj"
            },
            {
                "city1": "Sentjost",
                "city2": "Naklo"
            }
        ],
        "dist": 0.023000000000000324
    }
}
{
    "_id": 109,
    "value": {
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            {
                "city1": "Chai Wan",

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        },
        {
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            "city2": "Hong Kong"
        },
        {
            "city1": "Chai Wan",
            "city2": "Kowloon"
        },
        {
            "city1": "Chai Wan",
            "city2": "Kwun Tong"
        },
        {
            "city1": "Fanling",
            "city2": "Sheung Shui"
        }
    ],
    "dist": 0.023345235059851033
}
{
    "_id": 193,
    "value": {
        "cities": [
            {
                "city1": "Ciudad Del Este",
                "city2": "Capiata"
            },
            {
                "city1": "Capiata",
                "city2": "Fernando De La Mora"
            },
            {
                "city1": "Capiata",
                "city2": "Luque"
            },
            {
                "city1": "Fernando De La Mora",
                "city2": "Lambare"
            },
            {
                "city1": "Fernando De La Mora",
                "city2": "Villa Elisa"
            },
            {
                "city1": "Lambare",
                "city2": "Villa Elisa"
            },
            {
                "city1": "Limpio",
                "city2": "Mariano Roque Alonso"
            }
        ],
        "dist": 0.02334523505985332
    }
}
{
    "_id": 149,
    "value": {
        "cities": [
            {
                "city1": "Batu Pahat",
                "city2": "Johor Baharu"
            },
            {
                "city1": "Batu Pahat",
                "city2": "Kluang"
            },
            {
                "city1": "Batu Pahat",
                "city2": "Muar"
            },
            {
                "city1": "Johor Baharu",
                "city2": "Kota Tinggi"
            },
            {
                "city1": "Alor Setar",
                "city2": "Jitra"
            },
            {
                "city1": "Arau",
            }
        ]
    }
}
```

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        },
        {
            "city1": "Butterworth",
            "city2": "Prai"
        },
        {
            "city1": "Ampang",
            "city2": "Ulu Kelang"
        },
        {
            "city1": "Kuala Lumpur",
            "city2": "Sentul"
        }
    ],
    "dist": 0.023345235059854533
}
{
    "_id": 234,
    "value": {
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            {
                "city1": "Aarau",
                "city2": "Baden"
            },
            {
                "city1": "Aarau",
                "city2": "Brugg"
            },
            {
                "city1": "Aarau",
                "city2": "Lenzburg"
            },
            {
                "city1": "Baden",
                "city2": "Bremgarten"
            },
            {
                "city1": "Baden",
                "city2": "Brugg"
            },
            {
                "city1": "Bremgarten",
                "city2": "Wohlen"
            },
            {
                "city1": "Lausanne",
                "city2": "Pully"
            }
        ],
        "dist": 0.023345235059855904
    }
}
{
    "_id": 175,
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            {
                "city1": "Assen",
                "city2": "Beilen"
            },
            {
                "city1": "Hoogeveen",
                "city2": "Zuidwolde"
            },
            {
                "city1": "Arnhem",
                "city2": "Oosterbeek"
            },
            {
                "city1": "Ede",
                "city2": "Wageningen"
            },
            {
                "city1": "Eefde",
                "city2": "Zutphen"
            },
            {
                "city1": "Aarle-Rixtel",
                "city2": "Helmond"
            },
            {
                "city1": "Bilthoven",

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        "city2" : "De Bilt"
      }
    ],
    "dist" : 0.02334523505986142
  }
}
{
  "_id" : 144,
  "value" : {
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      {
        "city1" : "Bourscheid",
        "city2" : "Clervaux"
      },
      {
        "city1" : "Bourscheid",
        "city2" : "Diekirch"
      },
      {
        "city1" : "Bourscheid",
        "city2" : "Ettelbruck"
      },
      {
        "city1" : "Diekirch",
        "city2" : "Ettelbruck"
      },
      {
        "city1" : "Petange",
        "city2" : "Differdange"
      },
      {
        "city1" : "Strassen",
        "city2" : "Bertrange"
      }
    ],
    "dist" : 0.02339850422569853
  }
}
{
  "_id" : 48,
  "value" : {
    "cities" : [
      {
        "city1" : "Atamu Tekena",
        "city2" : "La Florida"
      },
      {
        "city1" : "Atamu Tekena",
        "city2" : "Llay-Llay"
      },
      {
        "city1" : "Atamu Tekena",
        "city2" : "Quilpue"
      },
      {
        "city1" : "Atamu Tekena",
        "city2" : "Recreo"
      },
      {
        "city1" : "Atamu Tekena",
        "city2" : "Valparaiso"
      },
      {
        "city1" : "Atamu Tekena",
        "city2" : "Chiguayante"
      },
      {
        "city1" : "Atamu Tekena",
        "city2" : "Concepcion"
      },
      {
        "city1" : "Atamu Tekena",
        "city2" : "Huachipato"
      },
      {
        "city1" : "La Florida",
        "city2" : "Llay-Llay"
      },
      {
        "city1" : "La Florida",
        "city2" : "San Fernando"
      },
      {
        "city1" : "Quilpue",

```

```

        },
        {
            "city1": "Recreo",
            "city2": "Renaca"
        },
        {
            "city1": "Recreo",
            "city2": "Valparaiso"
        }
    ],
    "dist": 0.02343074902772085
}
{
    "_id": 21,
    "value": {
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                "city1": "Christchurch",
                "city2": "Bridgetown"
            },
            {
                "city1": "Christchurch",
                "city2": "Warrens"
            }
        ],
        "dist": 0.024041630560339342
    }
}
{
    "_id": 24,
    "value": {
        "cities": [
            {
                "city1": "Antwerp",
                "city2": "Arendonk"
            },
            {
                "city1": "Antwerp",
                "city2": "Berlaar"
            },
            {
                "city1": "Antwerp",
                "city2": "Bornem"
            },
            {
                "city1": "Antwerp",
                "city2": "Lierre"
            },
            {
                "city1": "Antwerp",
                "city2": "Mortsel"
            },
            {
                "city1": "Puurs",
                "city2": "Bornem"
            },
            {
                "city1": "Braine-Le-Comte",
                "city2": "Hennuyeres"
            },
            {
                "city1": "Gent",
                "city2": "Gentbrugge"
            },
            {
                "city1": "Woluwe-Saint-Lambert",
                "city2": "Woluwe-Saint-Pierre"
            }
        ],
        "dist": 0.024041630560344366
    }
}
{
    "_id": 53,
    "value": {
        "cities": [
            {
                "city1": "Barrancas",
                "city2": "Cartagena"
            },
            {
                "city1": "Barrancas",

```

```

        },
        {
            "city1": "Barrancas",
            "city2": "Cucuta"
        },
        {
            "city1": "Envigado",
            "city2": "Itagui"
        },
        {
            "city1": "Bogota",
            "city2": "Santafé de Bogotá"
        }
    ],
    "dist": 0.025603351343134295
}
{
    "_id": 178,
    "value": {
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                "city1": "Hastings",
                "city2": "Napier"
            },
            {
                "city1": "Invercargill",
                "city2": "Winton"
            },
            {
                "city1": "Albany",
                "city2": "North Shore"
            },
            {
                "city1": "Auckland",
                "city2": "North Shore"
            },
            {
                "city1": "Manukau City",
                "city2": "Papatoetoe"
            },
            {
                "city1": "North Shore",
                "city2": "Takapuna"
            }
        ],
        "dist": 0.027202941017479578
    }
}
{
    "_id": 259,
    "value": {
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                "city1": "Capacho",
                "city2": "Puerto Ayacucho"
            },
            {
                "city1": "Capacho",
                "city2": "Santa Barbara"
            },
            {
                "city1": "Capacho",
                "city2": "Turmero"
            },
            {
                "city1": "Capacho",
                "city2": "Anaco"
            },
            {
                "city1": "Capacho",
                "city2": "Mantecal"
            },
            {
                "city1": "Santa Barbara",
                "city2": "San Felipe"
            },
            {
                "city1": "San Casimiro",
                "city2": "San Sebastian"
            },
            {
                "city1": "San Juan de Los Morros",

```

```
        },
        {
            "city1": "San Juan de Los Morros",
            "city2": "Piedra Azul"
        },
        {
            "city1": "Amuay",
            "city2": "Judibana"
        },
        {
            "city1": "Lagunillas",
            "city2": "San Cristobal"
        }
    ],
    "dist": 0.031240998703627045
}
{
```

```
    "_id": 119,
    "value": {
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            {
                "city1": "Chieti",
                "city2": "L'Aquila"
            },
            {
                "city1": "Chieti",
                "city2": "Pescara"
            },
            {
                "city1": "Paterno",
                "city2": "Cosenza"
            },
            {
                "city1": "Portofino",
                "city2": "Rapallo"
            },
            {
                "city1": "Cardano al Campo",
                "city2": "Gallarate"
            }
        ],
        "dist": 0.032536977425690346
    }
}
{
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```
    "_id": 105,
    "value": {
        "cities": [
            {
                "city1": "Bourdon",
                "city2": "Delmas"
            },
            {
                "city1": "Delmas",
                "city2": "Diquini"
            },
            {
                "city1": "Delmas",
                "city2": "MARTISSANT"
            },
            {
                "city1": "Delmas",
                "city2": "PETIONVILLE"
            },
            {
                "city1": "Diquini",
                "city2": "MARTISSANT"
            }
        ],
        "dist": 0.033000000000000125
    }
}
{
```

```
    "_id": 179,
    "value": {
        "cities": [
            {
                "city1": "Diriamba",
                "city2": "Jinotepe"
            }
        ],
        "dist": 0.033000000000000125
    }
}
```

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    }
  }
  {
    "_id" : 233,
    "value" : {
      "cities" : [
        {
          "city1" : "Karlshamn",
          "city2" : "Karlskrona"
        },
        {
          "city1" : "Karlshamn",
          "city2" : "Olofström"
        },
        {
          "city1" : "Karlshamn",
          "city2" : "Pukavik"
        },
        {
          "city1" : "Skarså",
          "city2" : "Söderhamn"
        },
        {
          "city1" : "Skummeslövsstrand",
          "city2" : "Båstad"
        },
        {
          "city1" : "Danderyd",
          "city2" : "Solna"
        },
        {
          "city1" : "Holmgård",
          "city2" : "Huddinge"
        }
      ],
      "dist" : 0.033000000000000125
    }
  }
  {
    "_id" : 18,
    "value" : {
      "cities" : [
        {
          "city1" : "Al Manamah",
          "city2" : "Ar Rifa"
        },
        {
          "city1" : "Al Manamah",
          "city2" : "Muharraq"
        }
      ],
      "dist" : 0.035805027579939586
    }
  }
  {
    "_id" : 15,
    "value" : {
      "cities" : [
        {
          "city1" : "Eisenstadt",
          "city2" : "Güssing"
        },
        {
          "city1" : "Eisenstadt",
          "city2" : "Neudörf"
        },
        {
          "city1" : "Eisenstadt",
          "city2" : "Ebreichsdorf"
        },
        {
          "city1" : "Neudörf",
          "city2" : "Wiener Neustadt"
        }
      ],
      "dist" : 0.03712142238654041
    }
  }
  {
    "_id" : 33,
    "value" : {
      "cities" : [
        {
          "city1" : "Rio Branco",

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```

    },
    {
      "city1": "Rio Branco",
      "city2": "Manáus"
    },
    {
      "city1": "Rio Branco",
      "city2": "Porto Velho"
    },
    {
      "city1": "Macapá",
      "city2": "Barra do Corda"
    },
    {
      "city1": "Macapá",
      "city2": "São Luís"
    },
    {
      "city1": "Macapá",
      "city2": "Belém"
    },
    {
      "city1": "Ilhéus",
      "city2": "Itapetinga"
    },
    {
      "city1": "Ilhéus",
      "city2": "Salvador"
    },
    {
      "city1": "Porto Seguro",
      "city2": "Trancoso"
    },
    {
      "city1": "Curitiba",
      "city2": "São José dos Pinhais"
    },
    {
      "city1": "Campinas",
      "city2": "Valinhos"
    },
    {
      "city1": "Diadema",
      "city2": "São Bernardo do Campo"
    },
    {
      "city1": "Praia Grande",
      "city2": "São Vicente"
    }
  ],
  "dist": 0.03712142238654041
}
{
  "_id": 185,
  "value": {
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        "city1": "Ås",
        "city2": "Asker"
      },
      {
        "city1": "Ås",
        "city2": "Kjeller"
      },
      {
        "city1": "Ås",
        "city2": "Sandvika"
      },
      {
        "city1": "Ås",
        "city2": "Son"
      },
      {
        "city1": "Asker",
        "city2": "Sandvika"
      },
      {
        "city1": "Asker",
        "city2": "Slemmestad"
      },
      {
        "city1": "Frogner",

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        },
        {
            "city1": "Kjeller",
            "city2": "Lillestrøm"
        },
        {
            "city1": "Nydalen",
            "city2": "Oslo"
        }
    ],
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}
{
    "_id": 100,
    "value": {
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                "city1": "Salama",
                "city2": "Escuintla"
            },
            {
                "city1": "Salama",
                "city2": "Boca Del Monte"
            },
            {
                "city1": "Salama",
                "city2": "Guatemala"
            },
            {
                "city1": "Escuintla",
                "city2": "Boca Del Monte"
            },
            {
                "city1": "Escuintla",
                "city2": "SAN MIGUEL PETAPA"
            },
            {
                "city1": "Escuintla",
                "city2": "Antigua"
            },
            {
                "city1": "Boca Del Monte",
                "city2": "Guatemala"
            },
            {
                "city1": "Boca Del Monte",
                "city2": "SAN MIGUEL PETAPA"
            },
            {
                "city1": "Boca Del Monte",
                "city2": "VILLA CANALES"
            },
            {
                "city1": "SAN MIGUEL PETAPA",
                "city2": "VILLA CANALES"
            }
        ],
        "dist": 0.038013155617488865
    }
}
{
    "_id": 112,
    "value": {
        "cities": [
            {
                "city1": "Akureyri",
                "city2": "Selfoss"
            },
            {
                "city1": "Akureyri",
                "city2": "Saudarkrokur"
            },
            {
                "city1": "Selfoss",
                "city2": "Hafnarfjörður"
            },
            {
                "city1": "Selfoss",
                "city2": "Kopavogur"
            },
            {
                "city1": "Hafnarfjörður",

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        "city2" : "Kopavogur"
      }
    ],
    "dist" : 0.04362407592144397
  }
}
{
  "_id" : 224,
  "value" : {
    "cities" : [
      {
        "city1" : "Ballito",
        "city2" : "Durban"
      },
      {
        "city1" : "Durban",
        "city2" : "Westville"
      },
      {
        "city1" : "Alberton",
        "city2" : "Bedfordview"
      },
      {
        "city1" : "Alberton",
        "city2" : "Germiston"
      },
      {
        "city1" : "Bellville",
        "city2" : "Kuils River"
      }
    ],
    "dist" : 0.04738143096193118
  }
}
{
  "_id" : 95,
  "value" : {
    "cities" : [
      {
        "city1" : "Limnos",
        "city2" : "Serres"
      },
      {
        "city1" : "Limnos",
        "city2" : "Tripolis"
      },
      {
        "city1" : "Limnos",
        "city2" : "Larisa"
      },
      {
        "city1" : "Limnos",
        "city2" : "Trikala"
      },
      {
        "city1" : "Limnos",
        "city2" : "Agria"
      },
      {
        "city1" : "Limnos",
        "city2" : "Thiva"
      },
      {
        "city1" : "Limnos",
        "city2" : "Amarinthos"
      },
      {
        "city1" : "Kalamaria",
        "city2" : "Thessaloniki"
      },
      {
        "city1" : "Athens",
        "city2" : "Peristérion"
      }
    ],
    "dist" : 0.04738143096193373
  }
}
{
  "_id" : 143,
  "value" : {
    "cities" : [
      {
        "city1" : "Alytaus",

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    },
    {
      "city1": "Alytaus",
      "city2": "Birstonas"
    },
    {
      "city1": "Lazdijai",
      "city2": "Simnas"
    },
    {
      "city1": "Ezerelis",
      "city2": "Kacergine"
    },
    {
      "city1": "Ezerelis",
      "city2": "Kulautuva"
    },
    {
      "city1": "Kacergine",
      "city2": "Kulautuva"
    },
    {
      "city1": "Pagegiai",
      "city2": "Panemune"
    }
  ],
  "dist": 0.04999999999999716
}
{
  "_id": 174,
  "value": {
    "cities": [
      {
        "city1": "Banepa",
        "city2": "Kathmandu"
      },
      {
        "city1": "Banepa",
        "city2": "Lalitpur"
      },
      {
        "city1": "Kathmandu",
        "city2": "Lalitpur"
      }
    ],
    "dist": 0.05249761899362567
  }
}
{
  "_id": 236,
  "value": {
    "cities": [
      {
        "city1": "Chu-nan",
        "city2": "Hua-lien"
      },
      {
        "city1": "Chu-nan",
        "city2": "Hsin-chu"
      },
      {
        "city1": "P'ing-tung",
        "city2": "Kaohsiung"
      },
      {
        "city1": "Tainan",
        "city2": "Yung Kang City"
      }
    ],
    "dist": 0.06580091184778554
  }
}
{
  "_id": 29,
  "value": {
    "cities": [
      {
        "city1": "Sucre",
        "city2": "Villazon"
      },
      {
        "city1": "Sucre",

```

```

        },
        {
            "city1": "Sucre",
            "city2": "Potosi"
        },
        {
            "city1": "Aiquile",
            "city2": "Mizque"
        },
        {
            "city1": "Cotoca",
            "city2": "Portachuelo"
        },
        {
            "city1": "Corioco",
            "city2": "Yolosa"
        }
    ],
    "dist": 0.065999999999999895
}
}
{
    "_id": 256,
    "value": {
        "cities": [
            {
                "city1": "Artigas",
                "city2": "Carmelo"
            },
            {
                "city1": "Artigas",
                "city2": "Colonia"
            },
            {
                "city1": "Artigas",
                "city2": "Durazno"
            },
            {
                "city1": "Artigas",
                "city2": "Paso De Los Toros"
            },
            {
                "city1": "Artigas",
                "city2": "Maldonado"
            },
            {
                "city1": "Artigas",
                "city2": "Rivera"
            },
            {
                "city1": "Artigas",
                "city2": "Rocha"
            },
            {
                "city1": "Carmelo",
                "city2": "Colonia"
            },
            {
                "city1": "Durazno",
                "city2": "Paso De Los Toros"
            },
            {
                "city1": "Maldonado",
                "city2": "Punta del Este"
            }
        ],
        "dist": 0.067000000000000017
    }
}
{
    "_id": 252,
    "value": {
        "cities": [
            {
                "city1": "Abu Dhabi",
                "city2": "Ajman"
            },
            {
                "city1": "Abu Dhabi",
                "city2": "Dubai"
            },
            {
                "city1": "Ajman",

```

```

        },
        {
            "city1": "Ajman",
            "city2": "Dubai"
        },
        {
            "city1": "Ajman",
            "city2": "Sharjah "
        }
    ],
    "dist": 0.06811754546370562
}
{
    "_id": 64,
    "value": {
        "cities": [
            {
                "city1": "Kladno",
                "city2": "Prague"
            },
            {
                "city1": "Kladno",
                "city2": "Brno"
            },
            {
                "city1": "Kladno",
                "city2": "Jihlava"
            },
            {
                "city1": "Kladno",
                "city2": "Hradec Kralove"
            },
            {
                "city1": "Kladno",
                "city2": "Chocen"
            },
            {
                "city1": "Kladno",
                "city2": "Pardubice"
            },
            {
                "city1": "Prague",
                "city2": "Kralupy Nad Vltavou"
            },
            {
                "city1": "Blansko",
                "city2": "Pribram"
            },
            {
                "city1": "Blansko",
                "city2": "Decin"
            },
            {
                "city1": "Blansko",
                "city2": "Usti nad Labem"
            }
        ],
        "dist": 0.07468600939935206
    }
}
{
    "_id": 187,
    "value": {
        "cities": [
            {
                "city1": "Quetta",
                "city2": "Abbottabad"
            },
            {
                "city1": "Quetta",
                "city2": "Attock"
            },
            {
                "city1": "Quetta",
                "city2": "Dera Ismail Khan"
            },
            {
                "city1": "Quetta",
                "city2": "Muzaffargarh"
            },
            {
                "city1": "Quetta",

```

```

        },
        {
            "city1": "Quetta",
            "city2": "Rahimyar Khan"
        },
        {
            "city1": "Abbottabad",
            "city2": "Attock"
        },
        {
            "city1": "Abbottabad",
            "city2": "Rawalpindi"
        },
        {
            "city1": "Abbottabad",
            "city2": "Islamabad"
        },
        {
            "city1": "Attock",
            "city2": "Mardan"
        },
        {
            "city1": "Chiniot",
            "city2": "Faisalabad"
        },
        {
            "city1": "Khewra",
            "city2": "Pind Dadan Khan"
        }
    ],
    "dist": 0.07468600939935206
}
{
    "_id": 17,
    "value": {
        "cities": [
            {
                "city1": "Freetown",
                "city2": "Old Bight"
            }
        ],
        "dist": 0.07468600939935845
    }
}
{
    "_id": 271,
    "value": {
        "cities": [
            {
                "city1": "Ada",
                "city2": "Kisac"
            },
            {
                "city1": "Ada",
                "city2": "Senta"
            },
            {
                "city1": "Belgrade",
                "city2": "Zemun"
            },
            {
                "city1": "Kosovo Polje",
                "city2": "Pristina"
            }
        ],
        "dist": 0.07481310045707332
    }
}
{
    "_id": 213,
    "value": {
        "cities": [
            {
                "city1": "Al Khobar",
                "city2": "Al Madinah"
            },
            {
                "city1": "Al Khobar",
                "city2": "Dammam"
            },
            {
                "city1": "Al Khobar",

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        "city2" : "Dhahran"
      }
    ],
    "dist" : 0.07905694150420499
  }
}
{
  "_id" : 27,
  "value" : {
    "cities" : [
      {
        "city1" : "Hamilton",
        "city2" : "Saint George"
      },
      {
        "city1" : "Hamilton",
        "city2" : "Somerset"
      }
    ],
    "dist" : 0.08409518416650377
  }
}
{
  "_id" : 71,
  "value" : {
    "cities" : [
      {
        "city1" : "Marsa Alam",
        "city2" : "Al Mansurah"
      },
      {
        "city1" : "Marsa Alam",
        "city2" : "Hurghada"
      },
      {
        "city1" : "Al Mansurah",
        "city2" : "Giza"
      },
      {
        "city1" : "Al Mansurah",
        "city2" : "Cairo"
      },
      {
        "city1" : "Al Mansurah",
        "city2" : "Heliopolis"
      },
      {
        "city1" : "Al Mansurah",
        "city2" : "Ramadan 10 City"
      },
      {
        "city1" : "Hurghada",
        "city2" : "Sharm el-Sheikh"
      },
      {
        "city1" : "Giza",
        "city2" : "Cairo"
      }
    ],
    "dist" : 0.08766413177577416
  }
}
{
  "_id" : 239,
  "value" : {
    "cities" : [
      {
        "city1" : "Laem Chabang",
        "city2" : "Chiang Mai"
      },
      {
        "city1" : "Laem Chabang",
        "city2" : "Koh Samui"
      },
      {
        "city1" : "Laem Chabang",
        "city2" : "Surat Thani"
      },
      {
        "city1" : "Laem Chabang",
        "city2" : "Phuket"
      },
      {
        "city1" : "Chiang Mai",

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        "city2" : "Phitsanulok"
      },
      {
        "city1" : "Phitsanulok",
        "city2" : "Phetchabun"
      },
      {
        "city1" : "Non Buri ",
        "city2" : "Bangkok"
      }
    ],
    "dist" : 0.0896939239859617
  }
}
{
  "_id" : 157,
  "value" : {
    "cities" : [
      {
        "city1" : "Quatre Bornes",
        "city2" : "Port Louis"
      }
    ],
    "dist" : 0.0933857590856341
  }
}
{
  "_id" : 88,
  "value" : {
    "cities" : [
      {
        "city1" : "Banjul",
        "city2" : "Kanifing"
      }
    ],
    "dist" : 0.0980815986819128
  }
}
{
  "_id" : 36,
  "value" : {
    "cities" : [
      {
        "city1" : "Kuala Belait",
        "city2" : "Bandar Seri Begawan"
      },
      {
        "city1" : "Kuala Belait",
        "city2" : "Jerudong"
      },
      {
        "city1" : "Kuala Belait",
        "city2" : "Tutong"
      },
      {
        "city1" : "Bandar Seri Begawan",
        "city2" : "Jerudong"
      }
    ],
    "dist" : 0.10666770832825705
  }
}
{
  "_id" : 117,
  "value" : {
    "cities" : [
      {
        "city1" : "Ennis",
        "city2" : "Shannon"
      },
      {
        "city1" : "Dublin",
        "city2" : "Tallaght"
      }
    ],
    "dist" : 0.1118033988749879
  }
}
{
  "_id" : 9,
  "value" : {
    "cities" : [
      {
        "city1" : "Saint Johns",

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```

        "city2" : "Falmouth"
    }
    ],
    "dist" : 0.12037026210821469
}
{
    "_id" : 203,
    "value" : {
        "cities" : [
            {
                "city1" : "Syktyvkar",
                "city2" : "Derbent"
            },
            {
                "city1" : "Syktyvkar",
                "city2" : "Makhachkala"
            },
            {
                "city1" : "Syktyvkar",
                "city2" : "Yoshkar-Ola"
            },
            {
                "city1" : "Syktyvkar",
                "city2" : "Kotlas"
            },
            {
                "city1" : "Derbent",
                "city2" : "Makhachkala"
            },
            {
                "city1" : "Vladikavkaz",
                "city2" : "Nal'chik"
            },
            {
                "city1" : "Nal'chik",
                "city2" : "Georgievsk"
            },
            {
                "city1" : "Nal'chik",
                "city2" : "Novopavlovsk"
            },
            {
                "city1" : "Krasnogorsk",
                "city2" : "Serpukhov"
            },
            {
                "city1" : "Konakovo",
                "city2" : "Troitsk"
            },
            {
                "city1" : "Lermontov",
                "city2" : "Pyatigorsk"
            }
        ],
        "dist" : 0.12044085685513818
    }
}
{
    "_id" : 197,
    "value" : {
        "cities" : [
            {
                "city1" : "Boleslawiec",
                "city2" : "Glogow"
            },
            {
                "city1" : "Boleslawiec",
                "city2" : "Jelenia Gora"
            },
            {
                "city1" : "Lodz",
                "city2" : "Poznan"
            },
            {
                "city1" : "Krakow",
                "city2" : "Slomniki"
            },
            {
                "city1" : "Lomianki",
                "city2" : "Warsaw"
            },
            {
                "city1" : "Gliwice",

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        "city2" : "Zabrze"
    }
    ],
    "dist" : 0.12088010589009197
}
{
    "_id" : 108,
    "value" : {
        "cities" : [
            {
                "city1" : "TELA",
                "city2" : "Choluteca"
            },
            {
                "city1" : "TELA",
                "city2" : "Comayagua"
            },
            {
                "city1" : "TELA",
                "city2" : "Choloma"
            },
            {
                "city1" : "TELA",
                "city2" : "Progreso"
            },
            {
                "city1" : "SANTA RITA",
                "city2" : "La Ceiba"
            },
            {
                "city1" : "Choloma",
                "city2" : "La Lima"
            },
            {
                "city1" : "Choloma",
                "city2" : "SAN PEDRO SULA"
            },
            {
                "city1" : "La Lima",
                "city2" : "SAN PEDRO SULA"
            },
            {
                "city1" : "Progreso",
                "city2" : "La Lima"
            }
        ],
        "dist" : 0.12156479753613297
    }
}
{
    "_id" : 81,
    "value" : {
        "cities" : [
            {
                "city1" : "Mariehamn",
                "city2" : "Kemi"
            },
            {
                "city1" : "Mariehamn",
                "city2" : "Tornio"
            },
            {
                "city1" : "Mariehamn",
                "city2" : "Närpiö"
            },
            {
                "city1" : "Mariehamn",
                "city2" : "Naantali"
            },
            {
                "city1" : "Mariehamn",
                "city2" : "Rauma"
            },
            {
                "city1" : "Mariehamn",
                "city2" : "Uusikaupunki"
            },
            {
                "city1" : "Kemi",
                "city2" : "Rovaniemi"
            },
            {
                "city1" : "Kemi",

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```

        },
        {
            "city1": "Espoo",
            "city2": "Helsinki"
        },
        {
            "city1": "Espoo",
            "city2": "Tapiola"
        },
        {
            "city1": "Helsinki",
            "city2": "Tapiola"
        },
        {
            "city1": "Tapiola",
            "city2": "Vantaa"
        }
    ],
    "dist": 0.1314193669137066
}
{
    "_id": 261,
    "value": {
        "cities": [
            {
                "city1": "Charlotte Amalie",
                "city2": "Cruz Bay"
            }
        ],
        "dist": 0.13144930581786962
    }
}
{
    "_id": 111,
    "value": {
        "cities": [
            {
                "city1": "Hillye",
                "city2": "Kecskemet"
            },
            {
                "city1": "Hillye",
                "city2": "Szekszard"
            },
            {
                "city1": "Kecskemet",
                "city2": "Nagykoros"
            }
        ],
        "dist": 0.133000000000000267
    }
}
{
    "_id": 140,
    "value": {
        "cities": [
            {
                "city1": "Turnersville",
                "city2": "Gbarnga"
            },
            {
                "city1": "Gbarnga",
                "city2": "Clay-Ashland"
            },
            {
                "city1": "Clay-Ashland",
                "city2": "Monrovia"
            }
        ],
        "dist": 0.13763720427268214
    }
}
{
    "_id": 220,
    "value": {
        "cities": [
            {
                "city1": "Banska Bystrica",
                "city2": "Bratislava"
            },
            {
                "city1": "Banska Bystrica",

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```

        },
        {
            "city1" : "Banska Bystrica",
            "city2" : "Nitra"
        },
        {
            "city1" : "Banska Bystrica",
            "city2" : "Trencin"
        },
        {
            "city1" : "Banska Bystrica",
            "city2" : "Liptovsky Mikulas"
        },
        {
            "city1" : "Bratislava",
            "city2" : "Trnava"
        },
        {
            "city1" : "Kosice",
            "city2" : "Presov"
        },
        {
            "city1" : "Nove Mesto nad Vahom",
            "city2" : "Trencin"
        },
        {
            "city1" : "Piestany",
            "city2" : "Nove Mesto nad Vahom"
        }
    ],
    "dist" : 0.14999999999999858
}
{
    "_id" : 61,
    "value" : {
        "cities" : [
            {
                "city1" : "Slavonski Brod",
                "city2" : "Dubrovnik"
            },
            {
                "city1" : "Slavonski Brod",
                "city2" : "Orebic"
            },
            {
                "city1" : "Slavonski Brod",
                "city2" : "Djurdjevac"
            },
            {
                "city1" : "Slavonski Brod",
                "city2" : "Osijek"
            },
            {
                "city1" : "Slavonski Brod",
                "city2" : "Đakovo"
            },
            {
                "city1" : "Slavonski Brod",
                "city2" : "Nasice"
            },
            {
                "city1" : "Djurdjevac",
                "city2" : "Koprivnica"
            },
            {
                "city1" : "Nasice",
                "city2" : "Karlovac"
            },
            {
                "city1" : "Split",
                "city2" : "Supetar"
            },
            {
                "city1" : "Supetar",
                "city2" : "Omiš"
            }
        ],
        "dist" : 0.15088074761214718
    }
}
{
    "_id" : 153,
```

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    "value": {
      "cities": [
        {
          "city1": "Castletown",
          "city2": "Douglas"
        },
        {
          "city1": "Castletown",
          "city2": "Peel"
        }
      ],
      "dist": 0.15743252522906526
    }
  }
}
{
  "_id": 245,
  "value": {
    "cities": [
      {
        "city1": "Monastir",
        "city2": "Msaken"
      },
      {
        "city1": "Carthage",
        "city2": "Tunis"
      }
    ],
    "dist": 0.1584329511181317
  }
}
{
  "_id": 251,
  "value": {
    "cities": [
      {
        "city1": "Cherkassy",
        "city2": "Chernivtsi"
      },
      {
        "city1": "Cherkassy",
        "city2": "Kaniv"
      },
      {
        "city1": "Char'kov",
        "city2": "Merefa"
      },
      {
        "city1": "Donetsk",
        "city2": "Makeevka"
      }
    ],
    "dist": 0.1702292571798415
  }
}
{
  "_id": 274,
  "value": {
    "cities": [
      {
        "city1": "Mutare",
        "city2": "Gweru"
      },
      {
        "city1": "Mutare",
        "city2": "Kwekwe"
      },
      {
        "city1": "Mutare",
        "city2": "Harare"
      },
      {
        "city1": "Mutare",
        "city2": "Marondera"
      },
      {
        "city1": "Gweru",
        "city2": "Kwekwe"
      },
      {
        "city1": "Harare",
        "city2": "chitungwiza"
      }
    ],
    "dist": 0.17432441022415823
  }
}

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```

    }
  }
  {
    "_id": 90,
    "value": {
      "cities": [
        {
          "city1": "Bat'umi",
          "city2": "Tbilisi"
        },
        {
          "city1": "Bat'umi",
          "city2": "Mtskheta"
        },
        {
          "city1": "Bat'umi",
          "city2": "P'ot'I"
        },
        {
          "city1": "Tbilisi",
          "city2": "Mtskheta"
        }
      ],
      "dist": 0.17577613603672304
    }
  }
  {
    "_id": 63,
    "value": {
      "cities": [
        {
          "city1": "Famagusta",
          "city2": "Kyrenia"
        },
        {
          "city1": "Famagusta",
          "city2": "Larnaca"
        },
        {
          "city1": "Kyrenia",
          "city2": "Nicosia"
        }
      ],
      "dist": 0.18200274723200943
    }
  }
  {
    "_id": 70,
    "value": {
      "cities": [
        {
          "city1": "Puerto Ayora",
          "city2": "Puerto Baquerizo Moreno"
        },
        {
          "city1": "Guaranda",
          "city2": "Riobamba"
        },
        {
          "city1": "Otavalo",
          "city2": "Ibarra"
        }
      ],
      "dist": 0.19023406634984552
    }
  }
  {
    "_id": 201,
    "value": {
      "cities": [
        {
          "city1": "Saint Paul",
          "city2": "Saint-Denis"
        }
      ],
      "dist": 0.20351768964883651
    }
  }
  {
    "_id": 75,
    "value": {
      "cities": [
        {
          "city1": "Maardu",

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        "city2" : "saue"
      },
      {
        "city1" : "Maardu",
        "city2" : "Tallinn"
      },
      {
        "city1" : "saue",
        "city2" : "Tallinn"
      }
    ],
    "dist" : 0.20885641000457617
  }
}
{
  "_id" : 92,
  "value" : {
    "cities" : [
      {
        "city1" : "Accra",
        "city2" : "Tema"
      }
    ],
    "dist" : 0.21092415698539613
  }
}
{
  "_id" : 126,
  "value" : {
    "cities" : [
      {
        "city1" : "Madaba",
        "city2" : "Aqaba"
      },
      {
        "city1" : "Madaba",
        "city2" : "Karak"
      },
      {
        "city1" : "Madaba",
        "city2" : "Amman"
      },
      {
        "city1" : "Amman",
        "city2" : "Az Zarqa"
      }
    ],
    "dist" : 0.21349004660639403
  }
}
{
  "_id" : 137,
  "value" : {
    "cities" : [
      {
        "city1" : "Ligatne",
        "city2" : "Liepaja"
      },
      {
        "city1" : "Ligatne",
        "city2" : "RIGA"
      },
      {
        "city1" : "Ligatne",
        "city2" : "salaspils"
      },
      {
        "city1" : "Ligatne",
        "city2" : "Sigulda"
      }
    ],
    "dist" : 0.21653868014744954
  }
}
{
  "_id" : 228,
  "value" : {
    "cities" : [
      {
        "city1" : "Colombo",
        "city2" : "Nuwara Eliya"
      },
      {
        "city1" : "Colombo",

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```

        "city2" : "Gampaha"
      }
    ],
    "dist" : 0.21795412361320127
  }
}
{
  "_id" : 11,
  "value" : {
    "cities" : [
      {
        "city1" : "Vanadzor",
        "city2" : "Gyumri"
      },
      {
        "city1" : "Vanadzor",
        "city2" : "Spitak"
      }
    ],
    "dist" : 0.2200460179144342
  }
}
{
  "_id" : 200,
  "value" : {
    "cities" : [
      {
        "city1" : "Doha",
        "city2" : "Al Wakra"
      },
      {
        "city1" : "Doha",
        "city2" : "Al-Rayyan"
      },
      {
        "city1" : "Al Wakra",
        "city2" : "Al-Rayyan"
      }
    ],
    "dist" : 0.22161678636781992
  }
}
{
  "_id" : 26,
  "value" : {
    "cities" : [
      {
        "city1" : "Natitingou",
        "city2" : "Cotonou"
      },
      {
        "city1" : "Natitingou",
        "city2" : "Porto-Novo"
      },
      {
        "city1" : "Cotonou",
        "city2" : "Porto-Novo"
      }
    ],
    "dist" : 0.22703523955544888
  }
}
{
  "_id" : 72,
  "value" : {
    "cities" : [
      {
        "city1" : "Santa Ana",
        "city2" : "Arcatao"
      },
      {
        "city1" : "Santa Ana",
        "city2" : "Tenancingo"
      },
      {
        "city1" : "Santa Ana",
        "city2" : "San Antonio Los Ranchos"
      },
      {
        "city1" : "Arcatao",
        "city2" : "Tenancingo"
      },
      {
        "city1" : "Tenancingo",

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```

        "city2" : "San Salvador"
      },
      {
        "city1" : "Tenancingo",
        "city2" : "San Antonio Los Ranchos"
      }
    ],
    "dist" : 0.23120553626589554
  }
}
{
  "_id" : 260,
  "value" : {
    "cities" : [
      {
        "city1" : "Hanoi",
        "city2" : "Ho Chi Minh City"
      },
      {
        "city1" : "Hanoi",
        "city2" : "Bien Hoa"
      },
      {
        "city1" : "Hanoi",
        "city2" : "Hue"
      },
      {
        "city1" : "Ho Chi Minh City",
        "city2" : "Bien Hoa"
      }
    ],
    "dist" : 0.24999999999999943
  }
}
{
  "_id" : 202,
  "value" : {
    "cities" : [
      {
        "city1" : "Arad",
        "city2" : "Pitesti"
      },
      {
        "city1" : "Arad",
        "city2" : "Oradea"
      },
      {
        "city1" : "Arad",
        "city2" : "Salonta"
      },
      {
        "city1" : "Arad",
        "city2" : "Sinnicolaul Mare"
      },
      {
        "city1" : "Arad",
        "city2" : "Timisoara"
      },
      {
        "city1" : "Oradea",
        "city2" : "Salonta"
      },
      {
        "city1" : "Salonta",
        "city2" : "Craiova"
      },
      {
        "city1" : "Cluj-Napoca",
        "city2" : "Turda"
      }
    ],
    "dist" : 0.2710885464198019
  }
}
{
  "_id" : 67,
  "value" : {
    "cities" : [
      {
        "city1" : "Marigot",
        "city2" : "Roseau"
      }
    ],
    "dist" : 0.2785354914548595
  }
}

```

```

    }
  }
  {
    "_id" : 171,
    "value" : {
      "cities" : [
        {
          "city1" : "Windhoek",
          "city2" : "Swakopmund"
        },
        {
          "city1" : "Swakopmund",
          "city2" : "Walvis Bay"
        }
      ],
      "dist" : 0.2822095143683131
    }
  }
  {
    "_id" : 181,
    "value" : {
      "cities" : [
        {
          "city1" : "Owerri",
          "city2" : "Lagos"
        },
        {
          "city1" : "Owerri",
          "city2" : "Port Harcourt"
        },
        {
          "city1" : "Lagos",
          "city2" : "Ibadan"
        },
        {
          "city1" : "Ile-Ife",
          "city2" : "Oshogbo"
        }
      ],
      "dist" : 0.30000000000000007
    }
  }
  {
    "_id" : 232,
    "value" : {
      "cities" : [
        {
          "city1" : "Mbabane",
          "city2" : "Manzini"
        }
      ],
      "dist" : 0.30554804859465223
    }
  }
  {
    "_id" : 25,
    "value" : {
      "cities" : [
        {
          "city1" : "Belize",
          "city2" : "Belmopan"
        },
        {
          "city1" : "Belmopan",
          "city2" : "San Ignacio"
        }
      ],
      "dist" : 0.31820119421523463
    }
  }
  {
    "_id" : 37,
    "value" : {
      "cities" : [
        {
          "city1" : "Burgas",
          "city2" : "Sliven"
        },
        {
          "city1" : "Burgas",
          "city2" : "Balchik"
        },
        {
          "city1" : "Burgas",

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```

        },
        {
            "city1": "Blagoevgrad",
            "city2": "Sofia"
        },
        {
            "city1": "Plovdiv",
            "city2": "Smolyan"
        },
        {
            "city1": "Balchik",
            "city2": "Varna"
        }
    ],
    "dist": 0.3201562118716442
}
{
    "_id": 246,
    "value": {
        "cities": [
            {
                "city1": "Adana",
                "city2": "Alanya"
            },
            {
                "city1": "Adana",
                "city2": "Gaziantep"
            },
            {
                "city1": "Adana",
                "city2": "Mersin"
            },
            {
                "city1": "Izmir",
                "city2": "Manisa"
            }
        ],
        "dist": 0.33701335285118994
    }
}
{
    "_id": 30,
    "value": {
        "cities": [
            {
                "city1": "Banja Luka",
                "city2": "Bijeljina"
            },
            {
                "city1": "Banja Luka",
                "city2": "Brcko"
            },
            {
                "city1": "Banja Luka",
                "city2": "Gradiska"
            },
            {
                "city1": "Brcko",
                "city2": "Tuzla"
            }
        ],
        "dist": 0.3647739025752786
    }
}
{
    "_id": 129,
    "value": {
        "cities": [
            {
                "city1": "Nyeri",
                "city2": "Mombasa"
            },
            {
                "city1": "Nyeri",
                "city2": "Embu"
            },
            {
                "city1": "Kakamega",
                "city2": "Kisumu"
            }
        ],
        "dist": 0.383
    }
}

```

```

    }
  {
    "_id" : 238,
    "value" : {
      "cities" : [
        {
          "city1" : "Arusha",
          "city2" : "Dar Es Salaam"
        },
        {
          "city1" : "Arusha",
          "city2" : "Dodoma"
        },
        {
          "city1" : "Arusha",
          "city2" : "Bagamoyo"
        },
        {
          "city1" : "Dar Es Salaam",
          "city2" : "Zanzibar"
        },
        {
          "city1" : "Kilimanjaro",
          "city2" : "Morogoro"
        }
      ],
      "dist" : 0.4031128874149288
    }
  }
  {
    "_id" : 41,
    "value" : {
      "cities" : [
        {
          "city1" : "Battambang",
          "city2" : "Kampong Cham"
        },
        {
          "city1" : "Battambang",
          "city2" : "Kampot"
        },
        {
          "city1" : "Battambang",
          "city2" : "Kandal"
        },
        {
          "city1" : "Battambang",
          "city2" : "Kampong Thom"
        },
        {
          "city1" : "Battambang",
          "city2" : "Pursat"
        },
        {
          "city1" : "Battambang",
          "city2" : "Siem Reap"
        },
        {
          "city1" : "Kampong Cham",
          "city2" : "Kampot"
        },
        {
          "city1" : "Phnom Penh",
          "city2" : "Prey Veng"
        }
      ],
      "dist" : 0.40557243496075174
    }
  }
  {
    "_id" : 115,
    "value" : {
      "cities" : [
        {
          "city1" : "Orumiyeh",
          "city2" : "Zahedan"
        },
        {
          "city1" : "Orumiyeh",
          "city2" : "Fasa"
        },
        {
          "city1" : "Orumiyeh",
          "city2" : "Fasa"
        }
      ]
    }
  }

```

```

        "city2" : "Shiraz"
      },
      {
        "city1" : "Orumiyeh",
        "city2" : "Kermanshah"
      },
      {
        "city1" : "Orumiyeh",
        "city2" : "Tabriz"
      },
      {
        "city1" : "Fasa",
        "city2" : "Jahrom"
      }
    ],
    "dist" : 0.43353661898391155
  }
}
{
  "_id" : 146,
  "value" : {
    "cities" : [
      {
        "city1" : "Skopje",
        "city2" : "Ohrid"
      },
      {
        "city1" : "Skopje",
        "city2" : "Tetovo"
      },
      {
        "city1" : "Skopje",
        "city2" : "Veles"
      }
    ],
    "dist" : 0.4394963026010577
  }
}
{
  "_id" : 168,
  "value" : {
    "cities" : [
      {
        "city1" : "Casablanca",
        "city2" : "Fez"
      },
      {
        "city1" : "Casablanca",
        "city2" : "Marrakesh"
      },
      {
        "city1" : "Casablanca",
        "city2" : "Rabat"
      },
      {
        "city1" : "Fez",
        "city2" : "Meknes"
      },
      {
        "city1" : "Tangier",
        "city2" : "Tetouan"
      }
    ],
    "dist" : 0.4861738372228591
  }
}
{
  "_id" : 42,
  "value" : {
    "cities" : [
      {
        "city1" : "Douala",
        "city2" : "Mankon Bamenda"
      },
      {
        "city1" : "Douala",
        "city2" : "Limbe"
      }
    ],
    "dist" : 0.5010878166549252
  }
}
{
  "_id" : 97,

```

```

    "value": {
      "cities": [
        {
          "city1": "St George's",
          "city2": "Hillsborough"
        }
      ],
      "dist": 0.5116606394867611
    }
  }
{
  "_id": 176,
  "value": {
    "cities": [
      {
        "city1": "Willemstad",
        "city2": "Oranjestad"
      },
      {
        "city1": "Oranjestad",
        "city2": "Philipsburg"
      }
    ],
    "dist": 0.5522680508593641
  }
}
{
  "_id": 80,
  "value": {
    "cities": [
      {
        "city1": "Nailuva",
        "city2": "Suva"
      }
    ],
    "dist": 0.6116281550092378
  }
}
{
  "_id": 116,
  "value": {
    "cities": [
      {
        "city1": "Ar Rutbah",
        "city2": "Fallujah"
      },
      {
        "city1": "Fallujah",
        "city2": "Arbil"
      },
      {
        "city1": "Fallujah",
        "city2": "As Sulaymaniyah"
      },
      {
        "city1": "Fallujah",
        "city2": "Baghdad"
      }
    ],
    "dist": 0.621718561730307
  }
}
{
  "_id": 275,
  "value": {
    "cities": [
      {
        "city1": "Hebron",
        "city2": "Gaza City"
      }
    ],
    "dist": 0.6242827884861201
  }
}
{
  "_id": 38,
  "value": {
    "cities": [
      {
        "city1": "Ouagadougou",
        "city2": "Yako"
      },
      {
        "city1": "Yako",

```

```

        "city2" : "Ouahigouya"
    },
    ],
    "dist" : 0.6339999999999997
}
{
    "_id" : 250,
    "value" : {
        "cities" : [
            {
                "city1" : "Jinja",
                "city2" : "Kampala"
            },
            ],
        "dist" : 0.6380854174795096
    }
}
{
    "_id" : 62,
    "value" : {
        "cities" : [
            {
                "city1" : "Havana",
                "city2" : "Holguin"
            },
            {
                "city1" : "Havana",
                "city2" : "Las Tunas"
            },
            {
                "city1" : "Holguin",
                "city2" : "Las Tunas"
            },
            ],
        "dist" : 0.6920758628936452
    }
}
{
    "_id" : 165,
    "value" : {
        "cities" : [
            {
                "city1" : "Ulaangom",
                "city2" : "Choibalsan"
            },
            {
                "city1" : "Ulaangom",
                "city2" : "Moron"
            },
            {
                "city1" : "Ulaangom",
                "city2" : "Hovd"
            },
            {
                "city1" : "Ulaangom",
                "city2" : "Olgii"
            },
            {
                "city1" : "Darhan",
                "city2" : "Suhbaatar"
            },
            ],
        "dist" : 0.7967188964747841
    }
}
{
    "_id" : 163,
    "value" : {
        "cities" : [
            {
                "city1" : "Chisinau",
                "city2" : "Tiraspol"
            },
            ],
        "dist" : 0.802153351922187
    }
}
{
    "_id" : 23,
    "value" : {
        "cities" : [
            {
                "city1" : "Brest",

```

```

        },
        {
            "city1": "Brest",
            "city2": "Minsk"
        },
        {
            "city1": "Brest",
            "city2": "Molodechno"
        },
        {
            "city1": "Mahilyow",
            "city2": "Minsk"
        },
        {
            "city1": "Minsk",
            "city2": "Molodechno"
        }
    ],
    "dist": 0.8294443923494809
}
{
    "_id": 3,
    "value": {
        "cities": [
            {
                "city1": "Algiers",
                "city2": "Skikda"
            },
            {
                "city1": "Algiers",
                "city2": "Oran"
            },
            {
                "city1": "Algiers",
                "city2": "Ouled Djellal"
            },
            {
                "city1": "Skikda",
                "city2": "Ouled Djellal"
            },
            {
                "city1": "Skikda",
                "city2": "Annaba"
            },
            {
                "city1": "Oran",
                "city2": "Mascara"
            }
        ],
        "dist": 0.8365004482963547
    }
}
{
    "_id": 20,
    "value": {
        "cities": [
            {
                "city1": "Comilla",
                "city2": "Dhaka"
            }
        ],
        "dist": 0.8367855161270389
    }
}
{
    "_id": 191,
    "value": {
        "cities": [
            {
                "city1": "Goroka",
                "city2": "Madang"
            }
        ],
        "dist": 0.9611685596189683
    }
}
{
    "_id": 55,
    "value": {
        "cities": [
            {
                "city1": "Likasi",

```



```

        "city2" : "Lubumbashi"
    },
    ],
    "dist" : 1.0046651183354567
}
{
    "_id" : 56,
    "value" : {
        "cities" : [
            {
                "city1" : "Pointe Noire",
                "city2" : "Kinsasa"
            }
        ],
        "dist" : 1.0933078249056853
    }
}
{
    "_id" : 2,
    "value" : {
        "cities" : [
            {
                "city1" : "Korce",
                "city2" : "Tirane"
            }
        ],
        "dist" : 1.1860178118392657
    }
}
{
    "_id" : 235,
    "value" : {
        "cities" : [
            {
                "city1" : "Qamishly",
                "city2" : "Al Ladhiqiyah"
            },
            {
                "city1" : "Qamishly",
                "city2" : "Aleppo"
            },
            {
                "city1" : "Al Ladhiqiyah",
                "city2" : "Aleppo"
            },
            {
                "city1" : "Al Ladhiqiyah",
                "city2" : "Hims"
            }
        ],
        "dist" : 1.2194310148589813
    }
}
{
    "_id" : 270,
    "value" : {
        "cities" : [
            {
                "city1" : "Mukalla",
                "city2" : "Ibb"
            },
            {
                "city1" : "Ibb",
                "city2" : "Sanaa"
            }
        ],
        "dist" : 1.3882074772886075
    }
}
{
    "_id" : 240,
    "value" : {
        "cities" : [
            {
                "city1" : "kara",
                "city2" : "Lome"
            },
            {
                "city1" : "kara",
                "city2" : "Atakpame"
            },
            {
                "city1" : "Lome",

```

```

        "city2" : "Atakpame"
    },
    "dist" : 1.4038878160308972
}
{
    "_id" : 6,
    "value" : {
        "cities" : [
            {
                "city1" : "Benguela",
                "city2" : "Sumbe"
            }
        ],
        "dist" : 1.4439615645854298
    }
}
{
    "_id" : 214,
    "value" : {
        "cities" : [
            {
                "city1" : "Saint-Louis",
                "city2" : "Linguere"
            },
            {
                "city1" : "Dakar",
                "city2" : "Kaolack"
            }
        ],
        "dist" : 1.4605632475178878
    }
}
{
    "_id" : 39,
    "value" : {
        "cities" : [
            {
                "city1" : "Taunggyi",
                "city2" : "Moulmein"
            },
            {
                "city1" : "Taunggyi",
                "city2" : "Yangon"
            },
            {
                "city1" : "Moulmein",
                "city2" : "Yangon"
            }
        ],
        "dist" : 1.493065638208844
    }
}
{
    "_id" : 218,
    "value" : {
        "cities" : [
            {
                "city1" : "Bo",
                "city2" : "Freetown"
            }
        ],
        "dist" : 1.568367622721153
    }
}
{
    "_id" : 60,
    "value" : {
        "cities" : [
            {
                "city1" : "Abidjan",
                "city2" : "Yamoussoukro"
            }
        ],
        "dist" : 1.9525624189766635
    }
}
{
    "_id" : 128,
    "value" : {
        "cities" : [
            {
                "city1" : "Almaty",

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```

        },
        {
            "city1": "Almaty",
            "city2": "Astana"
        },
        {
            "city1": "Almaty",
            "city2": "Pavlodar"
        },
        {
            "city1": "Almaty",
            "city2": "Karaganda"
        },
        {
            "city1": "Almaty",
            "city2": "Zhambyl"
        },
        {
            "city1": "Astana",
            "city2": "Karaganda"
        }
    ],
    "dist": 2.1004687572063494
}
{
    "_id": 148,
    "value": {
        "cities": [
            {
                "city1": "Lilongwe",
                "city2": "Blantyre"
            }
        ],
        "dist": 2.1728067102252773
    }
}
{
    "_id": 237,
    "value": {
        "cities": [
            {
                "city1": "Dushanbe",
                "city2": "Khujand"
            }
        ],
        "dist": 2.223708838854585
    }
}
{
    "_id": 44,
    "value": {
        "cities": [
            {
                "city1": "Praia",
                "city2": "Mindelo"
            }
        ],
        "dist": 2.462609388433334
    }
}
{
    "_id": 257,
    "value": {
        "cities": [
            {
                "city1": "Bukhara",
                "city2": "Urgench"
            },
            {
                "city1": "Bukhara",
                "city2": "Samarkand"
            }
        ],
        "dist": 2.5338906843034796
    }
}
{
    "_id": 273,
    "value": {
        "cities": [
            {
                "city1": "Kitwe",

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```

        "city2" : "Lusaka"
      }
    ],
    "dist" : 2.601324470341983
  }
}
{
  "_id" : 151,
  "value" : {
    "cities" : [
      {
        "city1" : "Bamako",
        "city2" : "Tombouctou"
      },
      {
        "city1" : "Bamako",
        "city2" : "Gao"
      }
    ],
    "dist" : 2.9154759474226504
  }
}
{
  "_id" : 1,
  "value" : {
    "cities" : [
      {
        "city1" : "Herat",
        "city2" : "Kabul"
      },
      {
        "city1" : "Herat",
        "city2" : "Mazar-e Sharif"
      },
      {
        "city1" : "Kabul",
        "city2" : "Mazar-e Sharif"
      }
    ],
    "dist" : 3.0173461849777947
  }
}
{
  "_id" : 223,
  "value" : {
    "cities" : [
      {
        "city1" : "Muqdisho",
        "city2" : "Bereeda"
      },
      {
        "city1" : "Muqdisho",
        "city2" : "Borama"
      }
    ],
    "dist" : 3.1381806831347365
  }
}
{
  "_id" : 147,
  "value" : {
    "cities" : [
      {
        "city1" : "Madagascar",
        "city2" : "Nosy-Be"
      },
      {
        "city1" : "Madagascar",
        "city2" : "Antananarivo"
      },
      {
        "city1" : "Nosy-Be",
        "city2" : "Antananarivo"
      },
      {
        "city1" : "Nosy-Be",
        "city2" : "Tulear"
      }
    ],
    "dist" : 3.7968195018989292
  }
}
{
  "_id" : 135,

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    "value": {
      "cities": [
        {
          "city1": "Bishkek",
          "city2": "Karakol"
        }
      ],
      "dist": 3.8227789486184114
    }
  }
{
  "_id": 76,
  "value": {
    "cities": [
      {
        "city1": "Axum",
        "city2": "Addis Ababa"
      }
    ],
    "dist": 5.10002833325463
  }
}
{
  "_id": 229,
  "value": {
    "cities": [
      {
        "city1": "Khartoum",
        "city2": "Port Sudan"
      }
    ],
    "dist": 6.181634156919997
  }
}
{
  "_id": 96,
  "value": {
    "cities": [
      {
        "city1": "Kangerlussuaq",
        "city2": "Nuuk"
      },
      {
        "city1": "Nuuk",
        "city2": "Upernavik"
      }
    ],
    "dist": 9.679723544089475
  }
}
{
  "_id": 169,
  "value": {
    "cities": [
      {
        "city1": "Maputo",
        "city2": "Nampula"
      }
    ],
    "dist": 12.736202613024027
  }
}
{
  "_id": 74,
  "value": {
    "cities": [
      {
        "city1": "Taiping",
        "city2": "Asmara"
      }
    ],
    "dist": 41.84351058407982
  }
}
{
  "_id": 217,
  "value": {
    "cities": [
      {
        "city1": "Victoria",
        "city2": "Anse aux Pins"
      }
    ],
    "dist": 78.71779796461789
  }
}

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    }
  }
  {
    "_id": 57,
    "value": {
      "cities": [
        {
          "city1": "Avarua",
          "city2": "Rarotonga"
        }
      ],
      "dist": 161.16741075353912
    }
  }
  {
    "_id": 154,
    "value": {
      "cities": [
        {
          "city1": "Kwajalein",
          "city2": "Majuro"
        }
      ],
      "dist": 171.53000521483116
    }
  }
  {
    "_id": 8,
    "value": {
      "cities": [
        {
          "city1": "Molodesjnaja",
          "city2": "McMurdo Station"
        }
      ],
      "dist": 183.962470629202
    }
  }
}
4.
{
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  "value": {
    "cities": [
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        "city1": "Port Blair",
        "city2": "Anantapur"
      },
      {
        "city1": "Port Blair",
        "city2": "Banganapalle"
      },
      {
        "city1": "Port Blair",
        "city2": "Bapatla"
      },
      {
        "city1": "Port Blair",
        "city2": "Bhimavaram"
      },
      {
        "city1": "Port Blair",
        "city2": "Kakinada"
      },
      {
        "city1": "Port Blair",
        "city2": "Srikakulam"
      },
      {
        "city1": "Port Blair",
        "city2": "Bhubaneswar"
      },
      {
        "city1": "Port Blair",
        "city2": "Ganjam"
      },
      {
        "city1": "Port Blair",
        "city2": "Puri"
      },
      {
        "city1": "Anantapur",
        "city2": "Banganapalle"
      },
      {

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        "city1" : "Anantapur",
        "city2" : "Bellary"
      },
      {
        "city1" : "Bangnapalle",
        "city2" : "Chapirevula"
      },
      {
        "city1" : "Bapatla",
        "city2" : "Chirala"
      },
      {
        "city1" : "Chapirevula",
        "city2" : "Nandyal"
      },
      {
        "city1" : "Guntur",
        "city2" : "New Guntur"
      },
      {
        "city1" : "Kadapa",
        "city2" : "Cuddapah"
      },
      {
        "city1" : "Katni",
        "city2" : "Murwara"
      }
    ],
    "evaluated" : 653116,
    "dist" : 0.001341640786496747
  }
}
{
  "_id" : 133,
  "value" : {
    "cities" : [
      {
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        "city2" : "Jeju"
      },
      {
        "city1" : "Pusan-Kuso-2-dong",
        "city2" : "Inchon"
      },
      {
        "city1" : "Jeju",
        "city2" : "Pohang"
      },
      {
        "city1" : "Anyang",
        "city2" : "Chonju"
      },
      {
        "city1" : "Chongju",
        "city2" : "Chungju"
      }
    ],
    "evaluated" : 2376,
    "dist" : 0.003026549190084301
  }
}
{
  "_id" : 93,
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      {
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        "city2" : "La Linea"
      }
    ],
    "evaluated" : 16,
    "dist" : 0.003162277660168312
  }
}
{
  "_id" : 199,
  "value" : {
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      {
        "city1" : "Aguadilla",
        "city2" : "Aibonito"
      },
      {
        "city1" : "Aguadilla",

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        },
        {
            "city1": "Aguadilla",
            "city2": "Cabo Rojo"
        },
        {
            "city1": "Aguadilla",
            "city2": "Isabela"
        },
        {
            "city1": "Aibonito",
            "city2": "Barranquitas"
        },
        {
            "city1": "Canovanas",
            "city2": "Carolina"
        },
        {
            "city1": "Guaynabo",
            "city2": "Bayamon"
        },
        {
            "city1": "Mayagüez",
            "city2": "Santurce"
        }
    ],
    "evaluated": 1404,
    "dist": 0.006082762530299229
}
}
{
    "_id": 219,
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            {
                "city1": "Bedok",
                "city2": "Bishan"
            },
            {
                "city1": "Bedok",
                "city2": "Pasir Ris"
            },
            {
                "city1": "Bedok",
                "city2": "Tampines"
            },
            {
                "city1": "Bishan",
                "city2": "Serangoon"
            },
            {
                "city1": "Bishan",
                "city2": "Toa Payoh"
            }
        ],
        "evaluated": 544,
        "dist": 0.01044030650891059
    }
}
{
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    "value": {
        "cities": [
            {
                "city1": "Beer-Sheva",
                "city2": "Dimona"
            },
            {
                "city1": "Beer-Sheva",
                "city2": "Hevron"
            },
            {
                "city1": "Ashdod",
                "city2": "Hatzor"
            },
            {
                "city1": "Ness Ziona",
                "city2": "Rehovot"
            },
            {
                "city1": "Petach Tikva",
                "city2": "Petah Tiqva"
            },
        ],
    }
}

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        {
            "city1": "Givatayim",
            "city2": "Ramat Gan"
        }
    ],
    "evaluated": 6356,
    "dist": 0.011180339887502127
}
{
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    "value": {
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                "city1": "Aabyhoj",
                "city2": "Arhus"
            },
            {
                "city1": "Arhus",
                "city2": "Arhus"
            }
        ],
        "evaluated": 21836,
        "dist": 0.011253888216966372
    }
}
{
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    "value": {
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                "city1": "AOL",
                "city2": "Aberystwyth"
            },
            {
                "city1": "AOL",
                "city2": "Bangor"
            },
            {
                "city1": "AOL",
                "city2": "Betws-y-Coed"
            },
            {
                "city1": "AOL",
                "city2": "Hawarden"
            },
            {
                "city1": "AOL",
                "city2": "Alsagers Bank"
            },
            {
                "city1": "AOL",
                "city2": "Altrincham"
            },
            {
                "city1": "AOL",
                "city2": "Barnsley"
            },
            {
                "city1": "AOL",
                "city2": "Blackburn"
            },
            {
                "city1": "AOL",
                "city2": "Bradford"
            },
            {
                "city1": "AOL",
                "city2": "Halifax"
            },
            {
                "city1": "AOL",
                "city2": "Keighley"
            },
            {
                "city1": "Mold",
                "city2": "Hawarden"
            },
            {
                "city1": "Cumbernauld",
                "city2": "Plains"
            },
            {
                "city1": "Dunblane",

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        },
        {
            "city1": "Dunfermline",
            "city2": "Inverkeithing"
        },
        {
            "city1": "Hamilton",
            "city2": "Motherwell"
        },
        {
            "city1": "Carrickfergus",
            "city2": "Whitehead"
        },
        {
            "city1": "East Preston",
            "city2": "Rustington"
        },
        {
            "city1": "Ilford",
            "city2": "Barking"
        },
        {
            "city1": "Saint Albans",
            "city2": "St Albans"
        }
    ],
    "evaluated": 222432,
    "dist": 0.011677589648553196
}
{
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    "value": {
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                "city1": "Sur",
                "city2": "Masqat"
            },
            {
                "city1": "Sur",
                "city2": "Muscat"
            },
            {
                "city1": "Masqat",
                "city2": "Muscat"
            }
        ],
        "evaluated": 24,
        "dist": 0.01173882447265839
    }
}
{
    "_id": 49,
    "value": {
        "cities": [
            {
                "city1": "Alar",
                "city2": "Anqing"
            },
            {
                "city1": "Alar",
                "city2": "Bose"
            },
            {
                "city1": "Alar",
                "city2": "Madoi"
            },
            {
                "city1": "Alar",
                "city2": "Golmud"
            },
            {
                "city1": "Alar",
                "city2": "Lenghu"
            },
            {
                "city1": "Alar",
                "city2": "Mangnai"
            },
            {
                "city1": "Alar",
                "city2": "Arxan"
            }
        ],
    }
}
```

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        {
            "city1": "Alar",
            "city2": "Bachu"
        },
        {
            "city1": "Alar",
            "city2": "Kashi"
        },
        {
            "city1": "Anqing",
            "city2": "Bose"
        },
        {
            "city1": "Anqing",
            "city2": "Gaoyao"
        },
        {
            "city1": "Anqing",
            "city2": "Hefei"
        },
        {
            "city1": "Anqing",
            "city2": "Huang Shan"
        },
        {
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            "city2": "Huoshan"
        },
        {
            "city1": "Bose",
            "city2": "Napo"
        },
        {
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            "city2": "Huoshan"
        },
        {
            "city1": "Huang Shan",
            "city2": "Taiyuan"
        },
        {
            "city1": "Changbai",
            "city2": "Dinghai"
        },
        {
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            "city2": "Dongsheng"
        },
        {
            "city1": "Nanjing",
            "city2": "Nanjing Jiangsu"
        }
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    "dist": 0.012165525060596124
}
}
{
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                "city2": "Birzebbugia"
            },
            {
                "city1": "Attard",
                "city2": "Cospicua"
            },
            {
                "city1": "Attard",
                "city2": "Ghaxaq"
            },
            {
                "city1": "Attard",
                "city2": "Gudja"
            },
            {
                "city1": "Attard",
                "city2": "Luqa"
            },
            {
                "city1": "Attard",
                "city2": "Mosta"
            }
        ]
    }
}

```

```

        },
        {
            "city1": "Attard",
            "city2": "Saint Venera"
        },
        {
            "city1": "Cospicua",
            "city2": "Tarxien"
        },
        {
            "city1": "Cospicua",
            "city2": "Valletta"
        },
        {
            "city1": "Ghaxaq",
            "city2": "Gudja"
        },
        {
            "city1": "Saint Julians",
            "city2": "Sliema"
        }
    ],
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    "dist": 0.012440257232068867
}
{
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            {
                "city1": "Amioun",
                "city2": "Tripoli"
            },
            {
                "city1": "Ashrafieh",
                "city2": "Beirut"
            }
        ],
        "evaluated": 60,
        "dist": 0.013038404810410333
    }
}
{
    "_id": 99,
    "value": {
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            {
                "city1": "Agana",
                "city2": "Agat"
            },
            {
                "city1": "Agana",
                "city2": "Dededo"
            },
            {
                "city1": "Agana",
                "city2": "Maite"
            },
            {
                "city1": "Maite",
                "city2": "Tamuning"
            }
        ],
        "evaluated": 176,
        "dist": 0.01592607924127576
    }
}
{
    "_id": 120,
    "value": {
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                "city2": "Chapelton"
            },
            {
                "city1": "Amity Hall",
                "city2": "Denbigh"
            },
            {
                "city1": "Amity Hall",
                "city2": "Four Paths"
            },
        ],
    }
}

```

```

    {
        "city1" : "Amity Hall",
        "city2" : "Rhymesbury"
    },
    {
        "city1" : "Lethe",
        "city2" : "Anchovy"
    },
    {
        "city1" : "Lethe",
        "city2" : "Mount Carey"
    },
    {
        "city1" : "Gregory Park",
        "city2" : "Passage Fort"
    }
],
"evaluated" : 16736,
"dist" : 0.0159999999999991132
}
{
    "_id" : 10,
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                "city2" : "Berazategui"
            },
            {
                "city1" : "Bahia Blanca",
                "city2" : "Caseros"
            },
            {
                "city1" : "Bahia Blanca",
                "city2" : "Castelar"
            },
            {
                "city1" : "Bahia Blanca",
                "city2" : "Chacabuco"
            },
            {
                "city1" : "Bahia Blanca",
                "city2" : "Miramar"
            },
            {
                "city1" : "Bahia Blanca",
                "city2" : "Tres Arroyos"
            },
            {
                "city1" : "Berazategui",
                "city2" : "Caseros"
            },
            {
                "city1" : "Berazategui",
                "city2" : "Ezeiza"
            },
            {
                "city1" : "Berazategui",
                "city2" : "La Plata"
            },
            {
                "city1" : "Berazategui",
                "city2" : "Lomas De Zamora"
            },
            {
                "city1" : "Caseros",
                "city2" : "Castelar"
            },
            {
                "city1" : "Caseros",
                "city2" : "Haedo"
            },
            {
                "city1" : "Caseros",
                "city2" : "Ramos Mejia"
            },
            {
                "city1" : "Caseros",
                "city2" : "San Martin"
            },
            {
                "city1" : "Haedo",
                "city2" : "Ramos Mejia"
            }
        ]
    }
}
```

```

        },
        {
            "city1" : "Turdera",
            "city2" : "Lomas De Zamora"
        }
    ],
    "evaluated" : 5724,
    "dist" : 0.015999999999998238
}
{
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    "value" : {
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            {
                "city1" : "Azua",
                "city2" : "El Cacao"
            },
            {
                "city1" : "El Cacao",
                "city2" : "Rancho Arriba"
            },
            {
                "city1" : "Tabara Arriba",
                "city2" : "Yayas De Viajama"
            },
            {
                "city1" : "Tamayo",
                "city2" : "Ubilla"
            },
            {
                "city1" : "Tamayo",
                "city2" : "Vicente Noble"
            },
            {
                "city1" : "Bahoruco",
                "city2" : "La Cienaga"
            }
        ],
        "evaluated" : 40004,
        "dist" : 0.015999999999998238
    }
}
{
    "_id" : 5,
    "value" : {
        "cities" : [
            {
                "city1" : "Andorra La Vella",
                "city2" : "Escaldes"
            }
        ],
        "evaluated" : 4,
        "dist" : 0.016000000000000014
    }
}
{
    "_id" : 198,
    "value" : {
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            {
                "city1" : "Aveiro",
                "city2" : "Santo João da Madeira"
            },
            {
                "city1" : "Santo João da Madeira",
                "city2" : "Matosinhos"
            },
            {
                "city1" : "Santo João da Madeira",
                "city2" : "Paços de brandão"
            },
            {
                "city1" : "Lagoa",
                "city2" : "Vila Real de Santo António"
            },
            {
                "city1" : "Quarteira",
                "city2" : "Vilamoura"
            },
            {
                "city1" : "Amadora",
                "city2" : "Queluz"
            },
        ],
    }
}

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        {
            "city1": "Carcavelos",
            "city2": "Oeiras"
        },
        "evaluated": 7080,
        "dist": 0.0160000000000000014
    }
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{
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    "value": {
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                "city2": "Charuma"
            },
            {
                "city1": "Arima",
                "city2": "Coryal"
            },
            {
                "city1": "Arima",
                "city2": "Carmichael"
            },
            {
                "city1": "Arima",
                "city2": "Cunaripa"
            },
            {
                "city1": "Arima",
                "city2": "Hasnalli"
            },
            {
                "city1": "Arima",
                "city2": "Brasso Seco Village"
            },
            {
                "city1": "Arima",
                "city2": "Tunapuna"
            },
            {
                "city1": "Charuma",
                "city2": "Biche"
            },
            {
                "city1": "Biche",
                "city2": "Plum Mitan"
            },
            {
                "city1": "Cuche",
                "city2": "Navet"
            },
            {
                "city1": "Cheeyou",
                "city2": "Sangre Grande"
            },
            {
                "city1": "Guaico Tamana",
                "city2": "Mamon"
            }
        ],
        "evaluated": 5512,
        "dist": 0.0160000000000000014
    }
}
{
    "_id": 14,
    "value": {
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                "city1": "Ascot Vale",
                "city2": "Bacchus Marsh"
            },
            {
                "city1": "Ascot Vale",
                "city2": "Bayswater"
            },
            {
                "city1": "Ascot Vale",
                "city2": "Chelsea"
            },
            {
                "city1": "Ascot Vale",

```

```

        },
        {
            "city1": "Ascot Vale",
            "city2": "Deer Park"
        },
        {
            "city1": "Ascot Vale",
            "city2": "Hawthorn"
        },
        {
            "city1": "Ascot Vale",
            "city2": "Melbourne"
        },
        {
            "city1": "Dandenong",
            "city2": "Noble Park"
        },
        {
            "city1": "Melbourne",
            "city2": "South Yarra"
        },
        {
            "city1": "Kalgoorlie",
            "city2": "Williamstown"
        }
    ],
    "evaluated": 104420,
    "dist": 0.0160000000000005343
}
{
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    "value": {
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                "city1": "Bocas Del Toro",
                "city2": "Changuinola"
            },
            {
                "city1": "Alanje",
                "city2": "Chiriqui"
            },
            {
                "city1": "Alanje",
                "city2": "David"
            },
            {
                "city1": "Alanje",
                "city2": "San Mateo"
            },
            {
                "city1": "Bambito",
                "city2": "Cerro Punta"
            },
            {
                "city1": "David",
                "city2": "El Varital"
            }
        ],
        "evaluated": 2520,
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    }
}
{
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    "value": {
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                "city2": "Arcachon"
            },
            {
                "city1": "Anglet",
                "city2": "Bayonne"
            },
            {
                "city1": "Anglet",
                "city2": "Biarritz"
            },
            {
                "city1": "Arcachon",
                "city2": "La Teste"
            }
        ],

```



```

        {
            "city1": "Saint-Germain-en-Laye",
            "city2": "Le Vesinet"
        },
        {
            "city1": "Clichy",
            "city2": "Levallois-Perret"
        },
        {
            "city1": "Colombes",
            "city2": "Courbevoic"
        }
    ],
    "evaluated": 71060,
    "dist": 0.016600000000003945
}
{
    "_id": 195,
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            {
                "city1": "Butuan City",
                "city2": "Legaspi"
            },
            {
                "city1": "Butuan City",
                "city2": "Batangas"
            },
            {
                "city1": "Butuan City",
                "city2": "Naga City"
            },
            {
                "city1": "Butuan City",
                "city2": "Roxas"
            },
            {
                "city1": "Butuan City",
                "city2": "Lapu-Lapu City"
            },
            {
                "city1": "Butuan City",
                "city2": "Cagayan De Oro"
            },
            {
                "city1": "Legaspi",
                "city2": "Angeles City"
            },
            {
                "city1": "Legaspi",
                "city2": "Alaminos"
            },
            {
                "city1": "Legaspi",
                "city2": "Dagupan City"
            },
            {
                "city1": "Legaspi",
                "city2": "Baguio"
            },
            {
                "city1": "Batangas",
                "city2": "Tagaytay"
            },
            {
                "city1": "Batangas",
                "city2": "Lipa City"
            },
            {
                "city1": "Cavite City",
                "city2": "Cainta"
            },
            {
                "city1": "Cavite City",
                "city2": "Muntinlupa"
            },
            {
                "city1": "Cavite City",
                "city2": "Las Pinas City"
            },
            {
                "city1": "Lapu-Lapu City",
                "city2": "Cebu"
            }
        ]
    }
}

```

```

        },
        {
            "city1" : "Laguna",
            "city2" : "Dumaguete City"
        },
        {
            "city1" : "Las Pinas City",
            "city2" : "Parañaque"
        }
    ],
    "evaluated" : 5724,
    "dist" : 0.016700000000000016
}
}
{
    "_id" : 43,
    "value" : {
        "cities" : [
            {
                "city1" : "Acton Vale",
                "city2" : "Amqui"
            },
            {
                "city1" : "Acton Vale",
                "city2" : "Aylmer"
            },
            {
                "city1" : "Acton Vale",
                "city2" : "Bagotville"
            },
            {
                "city1" : "Acton Vale",
                "city2" : "Baie Du Febvre"
            },
            {
                "city1" : "Acton Vale",
                "city2" : "Cowansville"
            },
            {
                "city1" : "Acton Vale",
                "city2" : "Granby"
            },
            {
                "city1" : "Aylmer",
                "city2" : "Gatineau"
            },
            {
                "city1" : "Aylmer",
                "city2" : "Hull"
            },
            {
                "city1" : "Aylmer",
                "city2" : "Kanata"
            },
            {
                "city1" : "Bagotville",
                "city2" : "La Baie"
            },
            {
                "city1" : "La Salle",
                "city2" : "Lachine"
            }
        ],
        "evaluated" : 676280,
        "dist" : 0.01699999999999995907
    }
}
{
    "_id" : 59,
    "value" : {
        "cities" : [
            {
                "city1" : "Quesada",
                "city2" : "Cartago"
            },
            {
                "city1" : "Quesada",
                "city2" : "Heredia"
            },
            {
                "city1" : "Cartago",
                "city2" : "Turrialba"
            }
        ]
    }
}

```

```

        "city1" : "Cartago",
        "city2" : "Curridabat"
      },
      {
        "city1" : "Curridabat",
        "city2" : "Heredia"
      },
      {
        "city1" : "Curridabat",
        "city2" : "Escazu"
      },
      {
        "city1" : "Curridabat",
        "city2" : "San Francisco De Dos Rios"
      }
    ],
    "evaluated" : 540,
    "dist" : 0.0169999999999995907
  }
}
{
  "_id" : 104,
  "value" : {
    "cities" : [
      {
        "city1" : "Jonestown",
        "city2" : "Albion"
      },
      {
        "city1" : "Jonestown",
        "city2" : "MAHAICA"
      },
      {
        "city1" : "Jonestown",
        "city2" : "NEW AMSTERDAM"
      },
      {
        "city1" : "Jonestown",
        "city2" : "OREALLA"
      },
      {
        "city1" : "Jonestown",
        "city2" : "SKELDON"
      },
      {
        "city1" : "Albion",
        "city2" : "Georgetown"
      },
      {
        "city1" : "SKELDON",
        "city2" : "SPRINGLANDS"
      },
      {
        "city1" : "Linden",
        "city2" : "MACKENZIE"
      }
    ],
    "evaluated" : 920,
    "dist" : 0.0169999999999995907
  }
}
{
  "_id" : 226,
  "value" : {
    "cities" : [
      {
        "city1" : "Ciudadela",
        "city2" : "Ibiza"
      },
      {
        "city1" : "Ciudadela",
        "city2" : "Palma de Mallorca"
      },
      {
        "city1" : "Ciudadela",
        "city2" : "Petra"
      },
      {
        "city1" : "Palma de Mallorca",
        "city2" : "Petra"
      },
      {
        "city1" : "Palma de Mallorca",
        "city2" : "Valldemosa"
      }
    ]
  }
}

```

```

    },
    {
      "city1" : "Alcalá De Henares",
      "city2" : "Daganzo de Arriba"
    },
    {
      "city1" : "Cadiz",
      "city2" : "El Puerto De Santa Maria"
    },
    {
      "city1" : "Badalona",
      "city2" : "Manresa"
    }
  ],
  "evaluated" : 30008,
  "dist" : 0.016999999999999904
}
{
  "_id" : 114,
  "value" : {
    "cities" : [
      {
        "city1" : "Denpasar",
        "city2" : "Klungkung"
      },
      {
        "city1" : "Denpasar",
        "city2" : "Kuta"
      },
      {
        "city1" : "Depok",
        "city2" : "Yogyakarta"
      },
      {
        "city1" : "Karawaci",
        "city2" : "Tangerang"
      }
    ],
    "evaluated" : 6156,
    "dist" : 0.0170000000000000348
  }
}

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```

{
  "_id" : 122,
  "value" : {
    "cities" : [
      {
        "city1" : "Hachijojima",
        "city2" : "Anjo"
      },
      {
        "city1" : "Hachijojima",
        "city2" : "Kasugai"
      },
      {
        "city1" : "Hachijojima",
        "city2" : "Toyokawa"
      },
      {
        "city1" : "Hachijojima",
        "city2" : "Kitami"
      },
      {
        "city1" : "Anjo",
        "city2" : "Okazaki"
      },
      {
        "city1" : "Chiba",
        "city2" : "Yotsukaido"
      },
      {
        "city1" : "Funabashi",
        "city2" : "Kamagaya"
      },
      {
        "city1" : "Funabashi",
        "city2" : "Narashino"
      },
      {
        "city1" : "Imazu",
        "city2" : "Iwakuni"
      },
      {

```

```

        "city1": "Kushiro",
        "city2": "Kawanishi"
    }
    ],
    "evaluated": 148508,
    "dist": 0.017000000000003013
}
{
    "_id": 183,
    "value": {
        "cities": [
            {
                "city1": "Burnt Pine",
                "city2": "Kingston"
            }
        ],
        "evaluated": 4,
        "dist": 0.01999999999999574
    }
}
{
    "_id": 134,
    "value": {
        "cities": [
            {
                "city1": "Al Sharq",
                "city2": "Khalidia"
            },
            {
                "city1": "Al Sharq",
                "city2": "Kuwait"
            }
        ],
        "evaluated": 208,
        "dist": 0.02017176244158732
    }
}
{
    "_id": 91,
    "value": {
        "cities": [
            {
                "city1": "Aalen",
                "city2": "Albstadt"
            },
            {
                "city1": "Aalen",
                "city2": "Bad Urach"
            },
            {
                "city1": "Aalen",
                "city2": "Crailsheim"
            },
            {
                "city1": "Aalen",
                "city2": "Ellwangen"
            },
            {
                "city1": "Aalen",
                "city2": "Waiblingen"
            },
            {
                "city1": "Friedlheim",
                "city2": "Wiernsheim"
            },
            {
                "city1": "Gedern",
                "city2": "Witten"
            },
            {
                "city1": "Mannheim",
                "city2": "Ludwigshafen Am Rhein"
            }
        ],
        "evaluated": 244284,
        "dist": 0.020591260281973632
    }
}
{
    "_id": 194,
    "value": {
        "cities": [
            {

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```

        "city1" : "Caras",
        "city2" : "Chimbote"
    },
    {
        "city1" : "Caras",
        "city2" : "Andahuaylas"
    },
    {
        "city1" : "Caras",
        "city2" : "Cajamarca"
    },
    {
        "city1" : "Caras",
        "city2" : "Trujillo"
    },
    {
        "city1" : "Aplao",
        "city2" : "Arequipa"
    },
    {
        "city1" : "Aplao",
        "city2" : "Camana"
    },
    {
        "city1" : "Arequipa",
        "city2" : "Cayma"
    }
    ],
    "evaluated" : 840,
    "dist" : 0.021633307652784758
}
{
    "_id" : 159,
    "value" : {
        "cities" : [
            {
                "city1" : "Agua Prieta",
                "city2" : "Caborca"
            },
            {
                "city1" : "Agua Prieta",
                "city2" : "Cananea"
            },
            {
                "city1" : "Cananea",
                "city2" : "Torreon"
            },
            {
                "city1" : "Cumpas",
                "city2" : "Nacozari De Garcia"
            },
            {
                "city1" : "Empalme",
                "city2" : "Guaymas"
            },
            {
                "city1" : "Guadalajara",
                "city2" : "Tlaquepaque"
            },
            {
                "city1" : "Cancun",
                "city2" : "Puerto Juarez"
            }
        ],
        "evaluated" : 52804,
        "dist" : 0.022627416997972053
    }
}
{
    "_id" : 221,
    "value" : {
        "cities" : [
            {
                "city1" : "Celje",
                "city2" : "Velenje"
            },
            {
                "city1" : "Celje",
                "city2" : "Hrastnik"
            },
            {
                "city1" : "Sentjost",
                "city2" : "Kranj"
            }
        ]
    }
}
```

```

        },
        {
            "city1": "Sentjost",
            "city2": "Naklo"
        }
    ],
    "evaluated": 684,
    "dist": 0.023000000000000324
}
}
{
    "_id": 109,
    "value": {
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            {
                "city1": "Chai Wan",
                "city2": "Fanling"
            },
            {
                "city1": "Chai Wan",
                "city2": "Hong Kong"
            },
            {
                "city1": "Chai Wan",
                "city2": "Kowloon"
            },
            {
                "city1": "Chai Wan",
                "city2": "Kwun Tong"
            },
            {
                "city1": "Fanling",
                "city2": "Sheung Shui"
            }
        ],
        "evaluated": 312,
        "dist": 0.023345235059851033
    }
}
{
    "_id": 193,
    "value": {
        "cities": [
            {
                "city1": "Ciudad Del Este",
                "city2": "Capiata"
            },
            {
                "city1": "Capiata",
                "city2": "Fernando De La Mora"
            },
            {
                "city1": "Capiata",
                "city2": "Luque"
            },
            {
                "city1": "Fernando De La Mora",
                "city2": "Lambare"
            },
            {
                "city1": "Fernando De La Mora",
                "city2": "Villa Elisa"
            },
            {
                "city1": "Lambare",
                "city2": "Villa Elisa"
            },
            {
                "city1": "Limpio",
                "city2": "Mariano Roque Alonso"
            }
        ],
        "evaluated": 220,
        "dist": 0.02334523505985332
    }
}
{
    "_id": 149,
    "value": {
        "cities": [
            {
                "city1": "Batu Pahat",
                "city2": "Johor Baharu"
            },

```

```

        {
            "city1": "Batu Pahat",
            "city2": "Kluang"
        },
        {
            "city1": "Batu Pahat",
            "city2": "Muar"
        },
        {
            "city1": "Johor Baharu",
            "city2": "Kota Tinggi"
        },
        {
            "city1": "Alor Setar",
            "city2": "Jitra"
        },
        {
            "city1": "Arau",
            "city2": "Kangar"
        },
        {
            "city1": "Butterworth",
            "city2": "Prai"
        },
        {
            "city1": "Ampang",
            "city2": "Ulu Kelang"
        },
        {
            "city1": "Kuala Lumpur",
            "city2": "Sentul"
        }
    ],
    "evaluated": 8572,
    "dist": 0.023345235059854533
}
{
    "_id": 234,
    "value": {
        "cities": [
            {
                "city1": "Aarau",
                "city2": "Baden"
            },
            {
                "city1": "Aarau",
                "city2": "Brugg"
            },
            {
                "city1": "Aarau",
                "city2": "Lenzburg"
            },
            {
                "city1": "Baden",
                "city2": "Bremgarten"
            },
            {
                "city1": "Baden",
                "city2": "Brugg"
            },
            {
                "city1": "Bremgarten",
                "city2": "Wohlen"
            },
            {
                "city1": "Lausanne",
                "city2": "Pully"
            }
        ],
        "evaluated": 10508,
        "dist": 0.023345235059855904
    }
}
{
    "_id": 175,
    "value": {
        "cities": [
            {
                "city1": "Assen",
                "city2": "Beilen"
            },
            {
                "city1": "Hoogeveen",

```



```

        },
        {
            "city1": "Arnhem",
            "city2": "Oosterbeek"
        },
        {
            "city1": "Ede",
            "city2": "Wageningen"
        },
        {
            "city1": "Eefde",
            "city2": "Zutphen"
        },
        {
            "city1": "Aarle-Rixtel",
            "city2": "Helmond"
        },
        {
            "city1": "Bilthoven",
            "city2": "De Bilt"
        }
    ],
    "evaluated": 63012,
    "dist": 0.02334523505986142
}
}
{
    "_id": 144,
    "value": {
        "cities": [
            {
                "city1": "Bourscheid",
                "city2": "Clervaux"
            },
            {
                "city1": "Bourscheid",
                "city2": "Diekirch"
            },
            {
                "city1": "Bourscheid",
                "city2": "Ettelbruck"
            },
            {
                "city1": "Diekirch",
                "city2": "Ettelbruck"
            },
            {
                "city1": "Petange",
                "city2": "Differdange"
            },
            {
                "city1": "Strassen",
                "city2": "Bertrange"
            }
        ],
        "evaluated": 312,
        "dist": 0.02339850422569853
    }
}
{
    "_id": 48,
    "value": {
        "cities": [
            {
                "city1": "Atamu Tekena",
                "city2": "La Florida"
            },
            {
                "city1": "Atamu Tekena",
                "city2": "Llay-Llay"
            },
            {
                "city1": "Atamu Tekena",
                "city2": "Quilpue"
            },
            {
                "city1": "Atamu Tekena",
                "city2": "Recreo"
            },
            {
                "city1": "Atamu Tekena",
                "city2": "Valparaiso"
            },
        ],
    }
}

```

```

        {
            "city1" : "Atamu Tekena",
            "city2" : "Chiguayante"
        },
        {
            "city1" : "Atamu Tekena",
            "city2" : "Concepcion"
        },
        {
            "city1" : "Atamu Tekena",
            "city2" : "Huachipato"
        },
        {
            "city1" : "La Florida",
            "city2" : "Llay-Llay"
        },
        {
            "city1" : "La Florida",
            "city2" : "San Fernando"
        },
        {
            "city1" : "Quilpue",
            "city2" : "Viña Del Mar"
        },
        {
            "city1" : "Recreo",
            "city2" : "Renaca"
        },
        {
            "city1" : "Recreo",
            "city2" : "Valparaíso"
        }
    ],
    "evaluated" : 9660,
    "dist" : 0.02343074902772085
}
{
    "_id" : 21,
    "value" : {
        "cities" : [
            {
                "city1" : "Christchurch",
                "city2" : "Bridgetown"
            },
            {
                "city1" : "Christchurch",
                "city2" : "Warrens"
            }
        ],
        "evaluated" : 24,
        "dist" : 0.024041630560339342
    }
}
{
    "_id" : 24,
    "value" : {
        "cities" : [
            {
                "city1" : "Antwerp",
                "city2" : "Arendonk"
            },
            {
                "city1" : "Antwerp",
                "city2" : "Berlaar"
            },
            {
                "city1" : "Antwerp",
                "city2" : "Bornem"
            },
            {
                "city1" : "Antwerp",
                "city2" : "Lierre"
            },
            {
                "city1" : "Antwerp",
                "city2" : "Mortsel"
            },
            {
                "city1" : "Puurs",
                "city2" : "Bornem"
            },
            {
                "city1" : "Braine-Le-Comte",
            }
        ]
    }
}
```

```

        },
        {
            "city1": "Gent",
            "city2": "Gentbrugge"
        },
        {
            "city1": "Woluwe-Saint-Lambert",
            "city2": "Woluwe-Saint-Pierre"
        }
    ],
    "evaluated": 18620,
    "dist": 0.024041630560344366
}
{
    "_id": 53,
    "value": {
        "cities": [
            {
                "city1": "Barrancas",
                "city2": "Cartagena"
            },
            {
                "city1": "Barrancas",
                "city2": "Arauca"
            },
            {
                "city1": "Barrancas",
                "city2": "Cucuta"
            },
            {
                "city1": "Envigado",
                "city2": "Itagui"
            },
            {
                "city1": "Bogota",
                "city2": "Santafé de Bogotá"
            }
        ],
        "evaluated": 9108,
        "dist": 0.025603351343134295
    }
}
{
    "_id": 178,
    "value": {
        "cities": [
            {
                "city1": "Hastings",
                "city2": "Napier"
            },
            {
                "city1": "Invercargill",
                "city2": "Winton"
            },
            {
                "city1": "Albany",
                "city2": "North Shore"
            },
            {
                "city1": "Auckland",
                "city2": "North Shore"
            },
            {
                "city1": "Manukau City",
                "city2": "Papatoetoe"
            },
            {
                "city1": "North Shore",
                "city2": "Takapuna"
            }
        ],
        "evaluated": 3960,
        "dist": 0.027202941017479578
    }
}
{
    "_id": 259,
    "value": {
        "cities": [
            {
                "city1": "Capacho",
                "city2": "Puerto Ayacucho"
            }
        ]
    }
}

```

```

        },
        {
            "city1" : "Capacho",
            "city2" : "Santa Barbara"
        },
        {
            "city1" : "Capacho",
            "city2" : "Turmero"
        },
        {
            "city1" : "Capacho",
            "city2" : "Anaco"
        },
        {
            "city1" : "Capacho",
            "city2" : "Mantecal"
        },
        {
            "city1" : "Santa Barbara",
            "city2" : "San Felipe"
        },
        {
            "city1" : "San Casimiro",
            "city2" : "San Sebastian"
        },
        {
            "city1" : "San Juan de Los Morros",
            "city2" : "San Sebastian"
        },
        {
            "city1" : "San Juan de Los Morros",
            "city2" : "Piedra Azul"
        },
        {
            "city1" : "Amuay",
            "city2" : "Judibana"
        },
        {
            "city1" : "Lagunillas",
            "city2" : "San Cristobal"
        }
    ],
    "evaluated" : 24416,
    "dist" : 0.031240998703627045
}
{
    "_id" : 119,
    "value" : {
        "cities" : [
            {
                "city1" : "Chieti",
                "city2" : "L'Aquila"
            },
            {
                "city1" : "Chieti",
                "city2" : "Pescara"
            },
            {
                "city1" : "Paterno",
                "city2" : "Cosenza"
            },
            {
                "city1" : "Portofino",
                "city2" : "Rapallo"
            },
            {
                "city1" : "Cardano al Campo",
                "city2" : "Gallarate"
            }
        ],
        "evaluated" : 94600,
        "dist" : 0.032536977425690346
    }
}
{
    "_id" : 105,
    "value" : {
        "cities" : [
            {
                "city1" : "Bourdon",
                "city2" : "Delmas"
            },
            {

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```

        "city1": "Delmas",
        "city2": "Diquini"
      },
      {
        "city1": "Delmas",
        "city2": "MARTISSANT"
      },
      {
        "city1": "Delmas",
        "city2": "PETIONVILLE"
      },
      {
        "city1": "Diquini",
        "city2": "MARTISSANT"
      }
    ],
    "evaluated": 144,
    "dist": 0.033000000000000125
  }
}
{
  "_id": 179,
  "value": {
    "cities": [
      {
        "city1": "Diriamba",
        "city2": "Jinotepe"
      }
    ],
    "evaluated": 1200,
    "dist": 0.033000000000000125
  }
}
{
  "_id": 233,
  "value": {
    "cities": [
      {
        "city1": "Karlshamn",
        "city2": "Karlskrona"
      },
      {
        "city1": "Karlshamn",
        "city2": "Olofström"
      },
      {
        "city1": "Karlshamn",
        "city2": "Pukavik"
      },
      {
        "city1": "Skarsa",
        "city2": "Söderhamn"
      },
      {
        "city1": "Skummeslövsstrand",
        "city2": "Båstad"
      },
      {
        "city1": "Danderyd",
        "city2": "Solna"
      },
      {
        "city1": "Holmgård",
        "city2": "Huddinge"
      }
    ],
    "evaluated": 112804,
    "dist": 0.033000000000000125
  }
}
{
  "_id": 18,
  "value": {
    "cities": [
      {
        "city1": "Al Manamah",
        "city2": "Ar Rifa"
      },
      {
        "city1": "Al Manamah",
        "city2": "Muharraq"
      }
    ],
    "evaluated": 80,

```

```

    "dist" : 0.035805027579939586
  }
}
{
  "_id" : 15,
  "value" : {
    "cities" : [
      {
        "city1" : "Eisenstadt",
        "city2" : "Güssing"
      },
      {
        "city1" : "Eisenstadt",
        "city2" : "Neudörf"
      },
      {
        "city1" : "Eisenstadt",
        "city2" : "Ebreichsdorf"
      },
      {
        "city1" : "Neudörf",
        "city2" : "Wiener Neustadt"
      }
    ],
    "evaluated" : 5508,
    "dist" : 0.03712142238654041
  }
}
{
  "_id" : 33,
  "value" : {
    "cities" : [
      {
        "city1" : "Rio Branco",
        "city2" : "Macapá"
      },
      {
        "city1" : "Rio Branco",
        "city2" : "Manáus"
      },
      {
        "city1" : "Rio Branco",
        "city2" : "Porto Velho"
      },
      {
        "city1" : "Macapá",
        "city2" : "Barra do Corda"
      },
      {
        "city1" : "Macapá",
        "city2" : "São Luís"
      },
      {
        "city1" : "Macapá",
        "city2" : "Belém"
      },
      {
        "city1" : "Ilhéus",
        "city2" : "Itapetinga"
      },
      {
        "city1" : "Ilhéus",
        "city2" : "Salvador"
      },
      {
        "city1" : "Porto Seguro",
        "city2" : "Trancoso"
      },
      {
        "city1" : "Curitiba",
        "city2" : "São José dos Pinhais"
      },
      {
        "city1" : "Campinas",
        "city2" : "Valinhos"
      },
      {
        "city1" : "Diadema",
        "city2" : "São Bernardo do Campo"
      },
      {
        "city1" : "Praia Grande",
        "city2" : "São Vicente"
      }
    ]
  }
}

```

```

    ],
    "evaluated" : 31000,
    "dist" : 0.03712142238654041
  }
}
{
  "_id" : 185,
  "value" : {
    "cities" : [
      {
        "city1" : "Ås",
        "city2" : "Asker"
      },
      {
        "city1" : "Ås",
        "city2" : "Kjeller"
      },
      {
        "city1" : "Ås",
        "city2" : "Sandvika"
      },
      {
        "city1" : "Ås",
        "city2" : "Son"
      },
      {
        "city1" : "Asker",
        "city2" : "Sandvika"
      },
      {
        "city1" : "Asker",
        "city2" : "Slemmestad"
      },
      {
        "city1" : "Frogner",
        "city2" : "Gjerdrum"
      },
      {
        "city1" : "Kjeller",
        "city2" : "Lillestrøm"
      },
      {
        "city1" : "Nydalen",
        "city2" : "Oslo"
      }
    ],
    "evaluated" : 17476,
    "dist" : 0.037121422386542036
  }
}
{
  "_id" : 100,
  "value" : {
    "cities" : [
      {
        "city1" : "Salama",
        "city2" : "Escuintla"
      },
      {
        "city1" : "Salama",
        "city2" : "Boca Del Monte"
      },
      {
        "city1" : "Salama",
        "city2" : "Guatemala"
      },
      {
        "city1" : "Escuintla",
        "city2" : "Boca Del Monte"
      },
      {
        "city1" : "Escuintla",
        "city2" : "SAN MIGUEL PETAPA"
      },
      {
        "city1" : "Escuintla",
        "city2" : "Antigua"
      },
      {
        "city1" : "Boca Del Monte",
        "city2" : "Guatemala"
      },
      {
        "city1" : "Boca Del Monte",

```

```
        },
        {
            "city1" : "Boca Del Monte",
            "city2" : "VILLA CANALES"
        },
        {
            "city1" : "SAN MIGUEL PETAPA",
            "city2" : "VILLA CANALES"
        }
    ],
    "evaluated" : 924,
    "dist" : 0.038013155617488865
}
{
```

```
    "_id" : 112,
    "value" : {
        "cities" : [
            {
                "city1" : "Akureyri",
                "city2" : "Selfoss"
            },
            {
                "city1" : "Akureyri",
                "city2" : "Saudarkrokur"
            },
            {
                "city1" : "Selfoss",
                "city2" : "Hafnarfjörður"
            },
            {
                "city1" : "Selfoss",
                "city2" : "Kopavogur"
            },
            {
                "city1" : "Hafnarfjörður",
                "city2" : "Kopavogur"
            }
        ],
        "evaluated" : 312,
        "dist" : 0.04362407592144397
    }
}
```

```
{
{
    "_id" : 224,
    "value" : {
        "cities" : [
            {
                "city1" : "Ballito",
                "city2" : "Durban"
            },
            {
                "city1" : "Durban",
                "city2" : "Westville"
            },
            {
                "city1" : "Alberton",
                "city2" : "Bedfordview"
            },
            {
                "city1" : "Alberton",
                "city2" : "Germiston"
            },
            {
                "city1" : "Bellville",
                "city2" : "Kuils River"
            }
        ],
        "evaluated" : 6608,
        "dist" : 0.04738143096193118
    }
}
```

```
{
{
    "_id" : 95,
    "value" : {
        "cities" : [
            {
                "city1" : "Limnos",
                "city2" : "Serres"
            },
            {
                "city1" : "Limnos",
                "city2" : "Tripolis"
            }
        ]
    }
}
```



```

        },
        {
            "city1": "Limnos",
            "city2": "Larisa"
        },
        {
            "city1": "Limnos",
            "city2": "Trikala"
        },
        {
            "city1": "Limnos",
            "city2": "Agria"
        },
        {
            "city1": "Limnos",
            "city2": "Thiva"
        },
        {
            "city1": "Limnos",
            "city2": "Amarinthos"
        },
        {
            "city1": "Kalamaria",
            "city2": "Thessaloniki"
        },
        {
            "city1": "Athens",
            "city2": "Peristérion"
        }
    ],
    "evaluated": 3780,
    "dist": 0.04738143096193373
}
{
    "_id": 143,
    "value": {
        "cities": [
            {
                "city1": "Alytaus",
                "city2": "Daugai"
            },
            {
                "city1": "Alytaus",
                "city2": "Birstonas"
            },
            {
                "city1": "Lazdijai",
                "city2": "Simnas"
            },
            {
                "city1": "Ezerelis",
                "city2": "Kacergine"
            },
            {
                "city1": "Ezerelis",
                "city2": "Kulautuva"
            },
            {
                "city1": "Kacergine",
                "city2": "Kulautuva"
            },
            {
                "city1": "Pagegiai",
                "city2": "Panemune"
            }
        ],
        "evaluated": 24420,
        "dist": 0.049999999999999716
    }
}
{
    "_id": 174,
    "value": {
        "cities": [
            {
                "city1": "Banepa",
                "city2": "Kathmandu"
            },
            {
                "city1": "Banepa",
                "city2": "Lalitpur"
            }
        ]
    }
}

```

```

        "city1" : "Kathmandu",
        "city2" : "Lalitpur"
    }
    ],
    "evaluated" : 24,
    "dist" : 0.05249761899362567
}
{
    "_id" : 236,
    "value" : {
        "cities" : [
            {
                "city1" : "Chu-nan",
                "city2" : "Hua-lien"
            },
            {
                "city1" : "Chu-nan",
                "city2" : "Hsin-chu"
            },
            {
                "city1" : "P'ing-tung",
                "city2" : "Kaohsiung"
            },
            {
                "city1" : "Tainan",
                "city2" : "Yung Kang City"
            }
        ],
        "evaluated" : 464,
        "dist" : 0.06580091184778554
    }
}
{
    "_id" : 29,
    "value" : {
        "cities" : [
            {
                "city1" : "Sucre",
                "city2" : "Villazon"
            },
            {
                "city1" : "Sucre",
                "city2" : "Aiquile"
            },
            {
                "city1" : "Sucre",
                "city2" : "Potosi"
            },
            {
                "city1" : "Aiquile",
                "city2" : "Mizque"
            },
            {
                "city1" : "Cotoca",
                "city2" : "Portachuelo"
            },
            {
                "city1" : "Corioco",
                "city2" : "Yolosa"
            }
        ],
        "evaluated" : 2812,
        "dist" : 0.065999999999999895
    }
}
{
    "_id" : 256,
    "value" : {
        "cities" : [
            {
                "city1" : "Artigas",
                "city2" : "Carmelo"
            },
            {
                "city1" : "Artigas",
                "city2" : "Colonia"
            },
            {
                "city1" : "Artigas",
                "city2" : "Durazno"
            },
            {
                "city1" : "Artigas",

```

```

        },
        {
            "city1": "Artigas",
            "city2": "Maldonado"
        },
        {
            "city1": "Artigas",
            "city2": "Rivera"
        },
        {
            "city1": "Artigas",
            "city2": "Rocha"
        },
        {
            "city1": "Carmelo",
            "city2": "Colonia"
        },
        {
            "city1": "Durazno",
            "city2": "Paso De Los Toros"
        },
        {
            "city1": "Maldonado",
            "city2": "Punta del Este"
        }
    ],
    "evaluated": 364,
    "dist": 0.067000000000000017
}
{
    "_id": 252,
    "value": {
        "cities": [
            {
                "city1": "Abu Dhabi",
                "city2": "Ajman"
            },
            {
                "city1": "Abu Dhabi",
                "city2": "Dubai"
            },
            {
                "city1": "Ajman",
                "city2": "Bur Dubai"
            },
            {
                "city1": "Ajman",
                "city2": "Dubai"
            },
            {
                "city1": "Ajman",
                "city2": "Sharjah "
            }
        ],
        "evaluated": 108,
        "dist": 0.06811754546370562
    }
}
{
    "_id": 64,
    "value": {
        "cities": [
            {
                "city1": "Kladno",
                "city2": "Prague"
            },
            {
                "city1": "Kladno",
                "city2": "Brno"
            },
            {
                "city1": "Kladno",
                "city2": "Jihlava"
            },
            {
                "city1": "Kladno",
                "city2": "Hradec Kralove"
            },
            {
                "city1": "Kladno",
                "city2": "Chocen"
            },
        ],
    }
}

```

```

        {
            "city1" : "Kladno",
            "city2" : "Pardubice"
        },
        {
            "city1" : "Prague",
            "city2" : "Kralupy Nad Vltavou"
        },
        {
            "city1" : "Blansko",
            "city2" : "Pribram"
        },
        {
            "city1" : "Blansko",
            "city2" : "Decin"
        },
        {
            "city1" : "Blansko",
            "city2" : "Usti nad Labem"
        }
    ],
    "evaluated" : 2812,
    "dist" : 0.07468600939935206
}
{
    "_id" : 187,
    "value" : {
        "cities" : [
            {
                "city1" : "Quetta",
                "city2" : "Abbottabad"
            },
            {
                "city1" : "Quetta",
                "city2" : "Attock"
            },
            {
                "city1" : "Quetta",
                "city2" : "Dera Ismail Khan"
            },
            {
                "city1" : "Quetta",
                "city2" : "Muzaffargarh"
            },
            {
                "city1" : "Quetta",
                "city2" : "Hyderabad"
            },
            {
                "city1" : "Quetta",
                "city2" : "Rahimyar Khan"
            },
            {
                "city1" : "Abbottabad",
                "city2" : "Attock"
            },
            {
                "city1" : "Abbottabad",
                "city2" : "Rawalpindi"
            },
            {
                "city1" : "Abbottabad",
                "city2" : "Islamabad"
            },
            {
                "city1" : "Attock",
                "city2" : "Mardan"
            },
            {
                "city1" : "Chiniot",
                "city2" : "Faisalabad"
            },
            {
                "city1" : "Khewra",
                "city2" : "Pind Dadan Khan"
            }
        ],
        "evaluated" : 1860,
        "dist" : 0.07468600939935206
    }
}
{
    "_id" : 17,

```

```

    "value": {
      "cities": [
        {
          "city1": "Freetown",
          "city2": "Old Bight"
        }
      ],
      "evaluated": 680,
      "dist": 0.07468600939935845
    }
  }
  {
    "_id": 271,
    "value": {
      "cities": [
        {
          "city1": "Ada",
          "city2": "Kisac"
        },
        {
          "city1": "Ada",
          "city2": "Senta"
        },
        {
          "city1": "Belgrade",
          "city2": "Zemun"
        },
        {
          "city1": "Kosovo Polje",
          "city2": "Pristina"
        }
      ],
      "evaluated": 1200,
      "dist": 0.07481310045707332
    }
  }
  {
    "_id": 213,
    "value": {
      "cities": [
        {
          "city1": "Al Khobar",
          "city2": "Al Madinah"
        },
        {
          "city1": "Al Khobar",
          "city2": "Dammam"
        },
        {
          "city1": "Al Khobar",
          "city2": "Dhahran"
        }
      ],
      "evaluated": 360,
      "dist": 0.07905694150420499
    }
  }
  {
    "_id": 27,
    "value": {
      "cities": [
        {
          "city1": "Hamilton",
          "city2": "Saint George"
        },
        {
          "city1": "Hamilton",
          "city2": "Somerset"
        }
      ],
      "evaluated": 12,
      "dist": 0.08409518416650377
    }
  }
  {
    "_id": 71,
    "value": {
      "cities": [
        {
          "city1": "Marsa Alam",
          "city2": "Al Mansurah"
        },
        {
          "city1": "Marsa Alam",

```

```

        },
        {
            "city1": "Al Mansurah",
            "city2": "Giza"
        },
        {
            "city1": "Al Mansurah",
            "city2": "Cairo"
        },
        {
            "city1": "Al Mansurah",
            "city2": "Heliopolis"
        },
        {
            "city1": "Al Mansurah",
            "city2": "Ramadan 10 City"
        },
        {
            "city1": "Hurghada",
            "city2": "Sharm el-Sheikh"
        },
        {
            "city1": "Giza",
            "city2": "Cairo"
        }
    ],
    "evaluated": 220,
    "dist": 0.08766413177577416
}
{
    "_id": 239,
    "value": {
        "cities": [
            {
                "city1": "Laem Chabang",
                "city2": "Chiang Mai"
            },
            {
                "city1": "Laem Chabang",
                "city2": "Koh Samui"
            },
            {
                "city1": "Laem Chabang",
                "city2": "Surat Thani"
            },
            {
                "city1": "Laem Chabang",
                "city2": "Phuket"
            },
            {
                "city1": "Chiang Mai",
                "city2": "Phitsanulok"
            },
            {
                "city1": "Phitsanulok",
                "city2": "Phetchabun"
            },
            {
                "city1": "Non Buri ",
                "city2": "Bangkok"
            }
        ],
        "evaluated": 900,
        "dist": 0.0896939239859617
    }
}
{
    "_id": 157,
    "value": {
        "cities": [
            {
                "city1": "Quatre Bornes",
                "city2": "Port Louis"
            }
        ],
        "evaluated": 4,
        "dist": 0.0933857590856341
    }
}
{
    "_id": 88,
    "value": {
```

```

        "cities" : [
            {
                "city1" : "Banjul",
                "city2" : "Kanifing"
            }
        ],
        "evaluated" : 4,
        "dist" : 0.0980815986819128
    }
}
{
    "_id" : 36,
    "value" : {
        "cities" : [
            {
                "city1" : "Kuala Belait",
                "city2" : "Bandar Seri Begawan"
            },
            {
                "city1" : "Kuala Belait",
                "city2" : "Jerudong"
            },
            {
                "city1" : "Kuala Belait",
                "city2" : "Tutong"
            },
            {
                "city1" : "Bandar Seri Begawan",
                "city2" : "Jerudong"
            }
        ],
        "evaluated" : 24,
        "dist" : 0.10666770832825705
    }
}
{
    "_id" : 117,
    "value" : {
        "cities" : [
            {
                "city1" : "Ennis",
                "city2" : "Shannon"
            },
            {
                "city1" : "Dublin",
                "city2" : "Tallaght"
            }
        ],
        "evaluated" : 1624,
        "dist" : 0.1118033988749879
    }
}
{
    "_id" : 9,
    "value" : {
        "cities" : [
            {
                "city1" : "Saint Johns",
                "city2" : "Falmouth"
            }
        ],
        "evaluated" : 4,
        "dist" : 0.12037026210821469
    }
}
{
    "_id" : 203,
    "value" : {
        "cities" : [
            {
                "city1" : "Syktyvkar",
                "city2" : "Derbent"
            },
            {
                "city1" : "Syktyvkar",
                "city2" : "Makhachkala"
            },
            {
                "city1" : "Syktyvkar",
                "city2" : "Yoshkar-Ola"
            },
            {
                "city1" : "Syktyvkar",
                "city2" : "Kotlas"
            }
        ]
    }
}

```

```

        },
        {
            "city1": "Derbent",
            "city2": "Makhachkala"
        },
        {
            "city1": "Vladikavkaz",
            "city2": "Nal'chik"
        },
        {
            "city1": "Nal'chik",
            "city2": "Georgievsk"
        },
        {
            "city1": "Nal'chik",
            "city2": "Novopavlovsk"
        },
        {
            "city1": "Krasnogorsk",
            "city2": "Serpukhov"
        },
        {
            "city1": "Konakovo",
            "city2": "Troitsk"
        },
        {
            "city1": "Lermontov",
            "city2": "Pyatigorsk"
        }
    ],
    "evaluated": 19800,
    "dist": 0.12044085685513818
}
{
    "_id": 197,
    "value": {
        "cities": [
            {
                "city1": "Boleslawiec",
                "city2": "Glogow"
            },
            {
                "city1": "Boleslawiec",
                "city2": "Jelenia Gora"
            },
            {
                "city1": "Lodz",
                "city2": "Poznan"
            },
            {
                "city1": "Krakow",
                "city2": "Slomniki"
            },
            {
                "city1": "Lomianki",
                "city2": "Warsaw"
            },
            {
                "city1": "Gliwice",
                "city2": "Zabrze"
            }
        ],
        "evaluated": 4700,
        "dist": 0.12088010589009197
    }
}
{
    "_id": 108,
    "value": {
        "cities": [
            {
                "city1": "TELA",
                "city2": "Choluteca"
            },
            {
                "city1": "TELA",
                "city2": "Comayagua"
            },
            {
                "city1": "TELA",
                "city2": "Choloma"
            }
        ]
    }
}

```



```

        "city1" : "TELA",
        "city2" : "Progreso"
      },
      {
        "city1" : "SANTA RITA",
        "city2" : "La Ceiba"
      },
      {
        "city1" : "Choloma",
        "city2" : "La Lima"
      },
      {
        "city1" : "Choloma",
        "city2" : "SAN PEDRO SULA"
      },
      {
        "city1" : "La Lima",
        "city2" : "SAN PEDRO SULA"
      },
      {
        "city1" : "Progreso",
        "city2" : "La Lima"
      }
    ],
    "evaluated" : 840,
    "dist" : 0.12156479753613297
  }
}
{
  "_id" : 81,
  "value" : {
    "cities" : [
      {
        "city1" : "Mariehamn",
        "city2" : "Kemi"
      },
      {
        "city1" : "Mariehamn",
        "city2" : "Tornio"
      },
      {
        "city1" : "Mariehamn",
        "city2" : "Närpiö"
      },
      {
        "city1" : "Mariehamn",
        "city2" : "Naantali"
      },
      {
        "city1" : "Mariehamn",
        "city2" : "Rauma"
      },
      {
        "city1" : "Mariehamn",
        "city2" : "Uusikaupunki"
      },
      {
        "city1" : "Kemi",
        "city2" : "Rovaniemi"
      },
      {
        "city1" : "Kemi",
        "city2" : "Tornio"
      },
      {
        "city1" : "Espoo",
        "city2" : "Helsinki"
      },
      {
        "city1" : "Espoo",
        "city2" : "Tapiola"
      },
      {
        "city1" : "Helsinki",
        "city2" : "Tapiola"
      },
      {
        "city1" : "Tapiola",
        "city2" : "Vantaa"
      }
    ],
    "evaluated" : 7564,
    "dist" : 0.1314193669137066
  }
}

```

```

}
{
  "_id" : 261,
  "value" : {
    "cities" : [
      {
        "city1" : "Charlotte Amalie",
        "city2" : "Cruz Bay"
      }
    ],
    "evaluated" : 12,
    "dist" : 0.13144930581786962
  }
}
{
  "_id" : 111,
  "value" : {
    "cities" : [
      {
        "city1" : "Hillye",
        "city2" : "Kecskemet"
      },
      {
        "city1" : "Hillye",
        "city2" : "Szekszard"
      },
      {
        "city1" : "Kecskemet",
        "city2" : "Nagykoros"
      }
    ],
    "evaluated" : 1300,
    "dist" : 0.133000000000000267
  }
}
{
  "_id" : 140,
  "value" : {
    "cities" : [
      {
        "city1" : "Turnersville",
        "city2" : "Gbanga"
      },
      {
        "city1" : "Gbanga",
        "city2" : "Clay-Ashland"
      },
      {
        "city1" : "Clay-Ashland",
        "city2" : "Monrovia"
      }
    ],
    "evaluated" : 24,
    "dist" : 0.13763720427268214
  }
}
{
  "_id" : 220,
  "value" : {
    "cities" : [
      {
        "city1" : "Banska Bystrica",
        "city2" : "Bratislava"
      },
      {
        "city1" : "Banska Bystrica",
        "city2" : "Kosice"
      },
      {
        "city1" : "Banska Bystrica",
        "city2" : "Nitra"
      },
      {
        "city1" : "Banska Bystrica",
        "city2" : "Trencin"
      },
      {
        "city1" : "Banska Bystrica",
        "city2" : "Liptovsky Mikulas"
      },
      {
        "city1" : "Bratislava",
        "city2" : "Trnava"
      },
    ],
  }
}

```

```

        {
            "city1": "Kosice",
            "city2": "Presov"
        },
        {
            "city1": "Nove Mesto nad Vahom",
            "city2": "Trencin"
        },
        {
            "city1": "Piestany",
            "city2": "Nove Mesto nad Vahom"
        }
    ],
    "evaluated": 364,
    "dist": 0.149999999999999858
}
{
    "_id": 61,
    "value": {
        "cities": [
            {
                "city1": "Slavonski Brod",
                "city2": "Dubrovnik"
            },
            {
                "city1": "Slavonski Brod",
                "city2": "Orebic"
            },
            {
                "city1": "Slavonski Brod",
                "city2": "Djurdjevac"
            },
            {
                "city1": "Slavonski Brod",
                "city2": "Osijek"
            },
            {
                "city1": "Slavonski Brod",
                "city2": "Đakovo"
            },
            {
                "city1": "Slavonski Brod",
                "city2": "Nasice"
            },
            {
                "city1": "Djurdjevac",
                "city2": "Koprivnica"
            },
            {
                "city1": "Nasice",
                "city2": "Karlovac"
            },
            {
                "city1": "Split",
                "city2": "Supetar"
            },
            {
                "city1": "Supetar",
                "city2": "Omiš"
            }
        ],
        "evaluated": 1400,
        "dist": 0.15088074761214718
    }
}
{
    "_id": 153,
    "value": {
        "cities": [
            {
                "city1": "Castletown",
                "city2": "Douglas"
            },
            {
                "city1": "Castletown",
                "city2": "Peel"
            }
        ],
        "evaluated": 24,
        "dist": 0.15743252522906526
    }
}
{

```

```

    "_id" : 245,
    "value" : {
      "cities" : [
        {
          "city1" : "Monastir",
          "city2" : "Msaken"
        },
        {
          "city1" : "Carthage",
          "city2" : "Tunis"
        }
      ],
      "evaluated" : 60,
      "dist" : 0.1584329511181317
    }
  }
  {
    "_id" : 251,
    "value" : {
      "cities" : [
        {
          "city1" : "Cherkassy",
          "city2" : "Chernivtsi"
        },
        {
          "city1" : "Cherkassy",
          "city2" : "Kaniv"
        },
        {
          "city1" : "Char'kov",
          "city2" : "Merefa"
        },
        {
          "city1" : "Donetsk",
          "city2" : "Makeevka"
        }
      ],
      "evaluated" : 2240,
      "dist" : 0.1702292571798415
    }
  }
  {
    "_id" : 274,
    "value" : {
      "cities" : [
        {
          "city1" : "Mutare",
          "city2" : "Gweru"
        },
        {
          "city1" : "Mutare",
          "city2" : "Kwekwe"
        },
        {
          "city1" : "Mutare",
          "city2" : "Harare"
        },
        {
          "city1" : "Mutare",
          "city2" : "Marondera"
        },
        {
          "city1" : "Gweru",
          "city2" : "Kwekwe"
        },
        {
          "city1" : "Harare",
          "city2" : "chitungwiza"
        }
      ],
      "evaluated" : 180,
      "dist" : 0.17432441022415823
    }
  }
  {
    "_id" : 90,
    "value" : {
      "cities" : [
        {
          "city1" : "Bat'umi",
          "city2" : "Tbilisi"
        },
        {
          "city1" : "Bat'umi",

```

```

        },
        {
            "city1": "Bat'umi",
            "city2": "P'ot'I"
        },
        {
            "city1": "Tbilisi",
            "city2": "Mtskheta"
        }
    ],
    "evaluated": 40,
    "dist": 0.17577613603672304
}
{
    "_id": 63,
    "value": {
        "cities": [
            {
                "city1": "Famagusta",
                "city2": "Kyrenia"
            },
            {
                "city1": "Famagusta",
                "city2": "Larnaca"
            },
            {
                "city1": "Kyrenia",
                "city2": "Nicosia"
            }
        ],
        "evaluated": 60,
        "dist": 0.18200274723200943
    }
}
{
    "_id": 70,
    "value": {
        "cities": [
            {
                "city1": "Puerto Ayora",
                "city2": "Puerto Baquerizo Moreno"
            },
            {
                "city1": "Guaranda",
                "city2": "Riobamba"
            },
            {
                "city1": "Otavalo",
                "city2": "Ibarra"
            }
        ],
        "evaluated": 832,
        "dist": 0.19023406634984552
    }
}
{
    "_id": 201,
    "value": {
        "cities": [
            {
                "city1": "Saint Paul",
                "city2": "Saint-Denis"
            }
        ],
        "evaluated": 4,
        "dist": 0.20351768964883651
    }
}
{
    "_id": 75,
    "value": {
        "cities": [
            {
                "city1": "Maardu",
                "city2": "saue"
            },
            {
                "city1": "Maardu",
                "city2": "Tallinn"
            },
            {
                "city1": "saue",

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        "city2" : "Tallinn"
    }
    ],
    "evaluated" : 180,
    "dist" : 0.20885641000457617
}
{
    "_id" : 92,
    "value" : {
        "cities" : [
            {
                "city1" : "Accra",
                "city2" : "Tema"
            }
        ],
        "evaluated" : 144,
        "dist" : 0.21092415698539613
    }
}
{
    "_id" : 126,
    "value" : {
        "cities" : [
            {
                "city1" : "Madaba",
                "city2" : "Aqaba"
            },
            {
                "city1" : "Madaba",
                "city2" : "Karak"
            },
            {
                "city1" : "Madaba",
                "city2" : "Amman"
            },
            {
                "city1" : "Amman",
                "city2" : "Az Zarqa"
            }
        ],
        "evaluated" : 60,
        "dist" : 0.21349004660639403
    }
}
{
    "_id" : 137,
    "value" : {
        "cities" : [
            {
                "city1" : "Ligatne",
                "city2" : "Liepaja"
            },
            {
                "city1" : "Ligatne",
                "city2" : "RIGA"
            },
            {
                "city1" : "Ligatne",
                "city2" : "salaspils"
            },
            {
                "city1" : "Ligatne",
                "city2" : "Sigulda"
            }
        ],
        "evaluated" : 84,
        "dist" : 0.21653868014744954
    }
}
{
    "_id" : 228,
    "value" : {
        "cities" : [
            {
                "city1" : "Colombo",
                "city2" : "Nuwara Eliya"
            },
            {
                "city1" : "Colombo",
                "city2" : "Gampaha"
            }
        ],
        "evaluated" : 40,

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```

    "dist" : 0.21795412361320127
  }
}
{
  "_id" : 11,
  "value" : {
    "cities" : [
      {
        "city1" : "Vanadzor",
        "city2" : "Gyumri"
      },
      {
        "city1" : "Vanadzor",
        "city2" : "Spitak"
      }
    ],
    "evaluated" : 24,
    "dist" : 0.2200460179144342
  }
}
{
  "_id" : 200,
  "value" : {
    "cities" : [
      {
        "city1" : "Doha",
        "city2" : "Al Wakra"
      },
      {
        "city1" : "Doha",
        "city2" : "Al-Rayyan"
      },
      {
        "city1" : "Al Wakra",
        "city2" : "Al-Rayyan"
      }
    ],
    "evaluated" : 12,
    "dist" : 0.22161678636781992
  }
}
{
  "_id" : 26,
  "value" : {
    "cities" : [
      {
        "city1" : "Natitingou",
        "city2" : "Cotonou"
      },
      {
        "city1" : "Natitingou",
        "city2" : "Porto-Novo"
      },
      {
        "city1" : "Cotonou",
        "city2" : "Porto-Novo"
      }
    ],
    "evaluated" : 12,
    "dist" : 0.22703523955544888
  }
}
{
  "_id" : 72,
  "value" : {
    "cities" : [
      {
        "city1" : "Santa Ana",
        "city2" : "Arcatao"
      },
      {
        "city1" : "Santa Ana",
        "city2" : "Tenancingo"
      },
      {
        "city1" : "Santa Ana",
        "city2" : "San Antonio Los Ranchos"
      },
      {
        "city1" : "Arcatao",
        "city2" : "Tenancingo"
      },
      {
        "city1" : "Tenancingo",

```

```

        },
        {
            "city1": "Tenancingo",
            "city2": "San Antonio Los Ranchos"
        }
    ],
    "evaluated": 112,
    "dist": 0.23120553626589554
}
{
    "_id": 260,
    "value": {
        "cities": [
            {
                "city1": "Hanoi",
                "city2": "Ho Chi Minh City"
            },
            {
                "city1": "Hanoi",
                "city2": "Bien Hoa"
            },
            {
                "city1": "Hanoi",
                "city2": "Hue"
            },
            {
                "city1": "Ho Chi Minh City",
                "city2": "Bien Hoa"
            }
        ],
        "evaluated": 24,
        "dist": 0.24999999999999943
    }
}
{
    "_id": 202,
    "value": {
        "cities": [
            {
                "city1": "Arad",
                "city2": "Pitesti"
            },
            {
                "city1": "Arad",
                "city2": "Oradea"
            },
            {
                "city1": "Arad",
                "city2": "Salonta"
            },
            {
                "city1": "Arad",
                "city2": "Sinnicolaul Mare"
            },
            {
                "city1": "Arad",
                "city2": "Timisoara"
            },
            {
                "city1": "Oradea",
                "city2": "Salonta"
            },
            {
                "city1": "Salonta",
                "city2": "Craiova"
            },
            {
                "city1": "Cluj-Napoca",
                "city2": "Turda"
            }
        ],
        "evaluated": 1512,
        "dist": 0.2710885464198019
    }
}
{
    "_id": 67,
    "value": {
        "cities": [
            {
                "city1": "Marigot",
                "city2": "Roseau"
            }
        ]
    }
}

```



```

    },
    "evaluated" : 4,
    "dist" : 0.2785354914548595
  }
}
{
  "_id" : 171,
  "value" : {
    "cities" : [
      {
        "city1" : "Windhoek",
        "city2" : "Swakopmund"
      },
      {
        "city1" : "Swakopmund",
        "city2" : "Walvis Bay"
      }
    ],
    "evaluated" : 84,
    "dist" : 0.2822095143683131
  }
}
{
  "_id" : 181,
  "value" : {
    "cities" : [
      {
        "city1" : "Owerri",
        "city2" : "Lagos"
      },
      {
        "city1" : "Owerri",
        "city2" : "Port Harcourt"
      },
      {
        "city1" : "Lagos",
        "city2" : "Ibadan"
      },
      {
        "city1" : "Ile-Ife",
        "city2" : "Oshogbo"
      }
    ],
    "evaluated" : 252,
    "dist" : 0.30000000000000007
  }
}
{
  "_id" : 232,
  "value" : {
    "cities" : [
      {
        "city1" : "Mbabane",
        "city2" : "Manzini"
      }
    ],
    "evaluated" : 4,
    "dist" : 0.30554804859465223
  }
}
{
  "_id" : 25,
  "value" : {
    "cities" : [
      {
        "city1" : "Belize",
        "city2" : "Belmopan"
      },
      {
        "city1" : "Belmopan",
        "city2" : "San Ignacio"
      }
    ],
    "evaluated" : 56,
    "dist" : 0.31820119421523463
  }
}
{
  "_id" : 37,
  "value" : {
    "cities" : [
      {
        "city1" : "Burgas",

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```

        },
        {
            "city1": "Burgas",
            "city2": "Balchik"
        },
        {
            "city1": "Burgas",
            "city2": "Varna"
        },
        {
            "city1": "Blagoevgrad",
            "city2": "Sofia"
        },
        {
            "city1": "Plovdiv",
            "city2": "Smolyan"
        },
        {
            "city1": "Balchik",
            "city2": "Varna"
        }
    ],
    "evaluated": 220,
    "dist": 0.3201562118716442
}
{
    "_id": 246,
    "value": {
        "cities": [
            {
                "city1": "Adana",
                "city2": "Alanya"
            },
            {
                "city1": "Adana",
                "city2": "Gaziantep"
            },
            {
                "city1": "Adana",
                "city2": "Mersin"
            },
            {
                "city1": "Izmir",
                "city2": "Manisa"
            }
        ],
        "evaluated": 1300,
        "dist": 0.33701335285118994
    }
}
{
    "_id": 30,
    "value": {
        "cities": [
            {
                "city1": "Banja Luka",
                "city2": "Bijeljina"
            },
            {
                "city1": "Banja Luka",
                "city2": "Brcko"
            },
            {
                "city1": "Banja Luka",
                "city2": "Gradiska"
            },
            {
                "city1": "Brcko",
                "city2": "Tuzla"
            }
        ],
        "evaluated": 220,
        "dist": 0.3647739025752786
    }
}
{
    "_id": 129,
    "value": {
        "cities": [
            {
                "city1": "Nyeri",
                "city2": "Mombasa"
            }
        ]
    }
}

```

```

        },
        {
            "city1": "Nyeri",
            "city2": "Embu"
        },
        {
            "city1": "Kakamega",
            "city2": "Kisumu"
        }
    ],
    "evaluated": 220,
    "dist": 0.383
}
}
{
    "_id": 238,
    "value": {
        "cities": [
            {
                "city1": "Arusha",
                "city2": "Dar Es Salaam"
            },
            {
                "city1": "Arusha",
                "city2": "Dodoma"
            },
            {
                "city1": "Arusha",
                "city2": "Bagamoyo"
            },
            {
                "city1": "Dar Es Salaam",
                "city2": "Zanzibar"
            },
            {
                "city1": "Kilimanjaro",
                "city2": "Morogoro"
            }
        ],
        "evaluated": 180,
        "dist": 0.4031128874149288
    }
}
{
    "_id": 41,
    "value": {
        "cities": [
            {
                "city1": "Battambang",
                "city2": "Kampong Cham"
            },
            {
                "city1": "Battambang",
                "city2": "Kampot"
            },
            {
                "city1": "Battambang",
                "city2": "Kandal"
            },
            {
                "city1": "Battambang",
                "city2": "Kampong Thom"
            },
            {
                "city1": "Battambang",
                "city2": "Pursat"
            },
            {
                "city1": "Battambang",
                "city2": "Siem Reap"
            },
            {
                "city1": "Kampong Cham",
                "city2": "Kampot"
            },
            {
                "city1": "Phnom Penh",
                "city2": "Prey Veng"
            }
        ],
        "evaluated": 312,
        "dist": 0.40557243496075174
    }
}

```

```

{
  "_id" : 115,
  "value" : {
    "cities" : [
      {
        "city1" : "Orumiyeh",
        "city2" : "Zahedan"
      },
      {
        "city1" : "Orumiyeh",
        "city2" : "Fasa"
      },
      {
        "city1" : "Orumiyeh",
        "city2" : "Shiraz"
      },
      {
        "city1" : "Orumiyeh",
        "city2" : "Kermanshah"
      },
      {
        "city1" : "Orumiyeh",
        "city2" : "Tabriz"
      },
      {
        "city1" : "Fasa",
        "city2" : "Jahrom"
      }
    ],
    "evaluated" : 684,
    "dist" : 0.43353661898391155
  }
}
{
  "_id" : 146,
  "value" : {
    "cities" : [
      {
        "city1" : "Skopje",
        "city2" : "Ohrid"
      },
      {
        "city1" : "Skopje",
        "city2" : "Tetovo"
      },
      {
        "city1" : "Skopje",
        "city2" : "Veles"
      }
    ],
    "evaluated" : 24,
    "dist" : 0.4394963026010577
  }
}
{
  "_id" : 168,
  "value" : {
    "cities" : [
      {
        "city1" : "Casablanca",
        "city2" : "Fez"
      },
      {
        "city1" : "Casablanca",
        "city2" : "Marrakesh"
      },
      {
        "city1" : "Casablanca",
        "city2" : "Rabat"
      },
      {
        "city1" : "Fez",
        "city2" : "Meknes"
      },
      {
        "city1" : "Tangier",
        "city2" : "Tetouan"
      }
    ],
    "evaluated" : 180,
    "dist" : 0.4861738372228591
  }
}
{

```

```

    "_id": 42,
    "value": {
      "cities": [
        {
          "city1": "Douala",
          "city2": "Mankon Bamenda"
        },
        {
          "city1": "Douala",
          "city2": "Limbe"
        }
      ],
      "evaluated": 24,
      "dist": 0.5010878166549252
    }
  },
  {
    "_id": 97,
    "value": {
      "cities": [
        {
          "city1": "St George's",
          "city2": "Hillsborough"
        }
      ],
      "evaluated": 4,
      "dist": 0.5116606394867611
    }
  },
  {
    "_id": 176,
    "value": {
      "cities": [
        {
          "city1": "Willemstad",
          "city2": "Oranjestad"
        },
        {
          "city1": "Oranjestad",
          "city2": "Philipsburg"
        }
      ],
      "evaluated": 12,
      "dist": 0.5522680508593641
    }
  },
  {
    "_id": 80,
    "value": {
      "cities": [
        {
          "city1": "Nailuva",
          "city2": "Suva"
        }
      ],
      "evaluated": 4,
      "dist": 0.6116281550092378
    }
  },
  {
    "_id": 116,
    "value": {
      "cities": [
        {
          "city1": "Ar Rutbah",
          "city2": "Fallujah"
        },
        {
          "city1": "Fallujah",
          "city2": "Arbil"
        },
        {
          "city1": "Fallujah",
          "city2": "As Sulaymaniyah"
        },
        {
          "city1": "Fallujah",
          "city2": "Baghdad"
        }
      ],
      "evaluated": 112,
      "dist": 0.621718561730307
    }
  }
}

```

```

{
  "_id" : 275,
  "value" : {
    "cities" : [
      {
        "city1" : "Hebron",
        "city2" : "Gaza City"
      }
    ],
    "evaluated" : 4,
    "dist" : 0.6242827884861201
  }
}
{
  "_id" : 38,
  "value" : {
    "cities" : [
      {
        "city1" : "Ouagadougou",
        "city2" : "Yako"
      },
      {
        "city1" : "Yako",
        "city2" : "Ouahigouya"
      }
    ],
    "evaluated" : 24,
    "dist" : 0.6339999999999997
  }
}
{
  "_id" : 250,
  "value" : {
    "cities" : [
      {
        "city1" : "Jinja",
        "city2" : "Kampala"
      }
    ],
    "evaluated" : 4,
    "dist" : 0.6380854174795096
  }
}
{
  "_id" : 62,
  "value" : {
    "cities" : [
      {
        "city1" : "Havana",
        "city2" : "Holguin"
      },
      {
        "city1" : "Havana",
        "city2" : "Las Tunas"
      },
      {
        "city1" : "Holguin",
        "city2" : "Las Tunas"
      }
    ],
    "evaluated" : 12,
    "dist" : 0.6920758628936452
  }
}
{
  "_id" : 165,
  "value" : {
    "cities" : [
      {
        "city1" : "Ulaangom",
        "city2" : "Choibalsan"
      },
      {
        "city1" : "Ulaangom",
        "city2" : "Moron"
      },
      {
        "city1" : "Ulaangom",
        "city2" : "Hovd"
      },
      {
        "city1" : "Ulaangom",
        "city2" : "Olgii"
      },
    ],
  }
}

```

```

        {
            "city1": "Darhan",
            "city2": "Suhbaatar"
        },
        "evaluated": 312,
        "dist": 0.7967188964747841
    }
}
{
    "_id": 163,
    "value": {
        "cities": [
            {
                "city1": "Chisinau",
                "city2": "Tiraspol"
            }
        ],
        "evaluated": 4,
        "dist": 0.802153351922187
    }
}
{
    "_id": 23,
    "value": {
        "cities": [
            {
                "city1": "Brest",
                "city2": "Mahilyow"
            },
            {
                "city1": "Brest",
                "city2": "Minsk"
            },
            {
                "city1": "Brest",
                "city2": "Molodechno"
            },
            {
                "city1": "Mahilyow",
                "city2": "Minsk"
            },
            {
                "city1": "Minsk",
                "city2": "Molodechno"
            }
        ],
        "evaluated": 36,
        "dist": 0.8294443923494809
    }
}
{
    "_id": 3,
    "value": {
        "cities": [
            {
                "city1": "Algiers",
                "city2": "Skikda"
            },
            {
                "city1": "Algiers",
                "city2": "Oran"
            },
            {
                "city1": "Algiers",
                "city2": "Ouled Djellal"
            },
            {
                "city1": "Skikda",
                "city2": "Ouled Djellal"
            },
            {
                "city1": "Skikda",
                "city2": "Annaba"
            },
            {
                "city1": "Oran",
                "city2": "Mascara"
            }
        ],
        "evaluated": 60,
        "dist": 0.8365004482963547
    }
}

```

```

{
  "_id" : 20,
  "value" : {
    "cities" : [
      {
        "city1" : "Comilla",
        "city2" : "Dhaka"
      }
    ],
    "evaluated" : 40,
    "dist" : 0.8367855161270389
  }
}
{
  "_id" : 191,
  "value" : {
    "cities" : [
      {
        "city1" : "Goroka",
        "city2" : "Madang"
      }
    ],
    "evaluated" : 60,
    "dist" : 0.9611685596189683
  }
}
{
  "_id" : 55,
  "value" : {
    "cities" : [
      {
        "city1" : "Likasi",
        "city2" : "Lubumbashi"
      }
    ],
    "evaluated" : 24,
    "dist" : 1.0046651183354567
  }
}
{
  "_id" : 56,
  "value" : {
    "cities" : [
      {
        "city1" : "Pointe Noire",
        "city2" : "Kinsasa"
      }
    ],
    "evaluated" : 12,
    "dist" : 1.0933078249056853
  }
}
{
  "_id" : 2,
  "value" : {
    "cities" : [
      {
        "city1" : "Korce",
        "city2" : "Tirane"
      }
    ],
    "evaluated" : 4,
    "dist" : 1.1860178118392657
  }
}
{
  "_id" : 235,
  "value" : {
    "cities" : [
      {
        "city1" : "Qamishly",
        "city2" : "Al Ladhiqiyah"
      },
      {
        "city1" : "Qamishly",
        "city2" : "Aleppo"
      },
      {
        "city1" : "Al Ladhiqiyah",
        "city2" : "Aleppo"
      },
      {
        "city1" : "Al Ladhiqiyah",
        "city2" : "Hims"
      }
    ]
  }
}

```



```

        },
        "evaluated" : 40,
        "dist" : 1.2194310148589813
    }
}
{
    "_id" : 270,
    "value" : {
        "cities" : [
            {
                "city1" : "Mukalla",
                "city2" : "Ibb"
            },
            {
                "city1" : "Ibb",
                "city2" : "Sanaa"
            }
        ],
        "evaluated" : 12,
        "dist" : 1.3882074772886075
    }
}
{
    "_id" : 240,
    "value" : {
        "cities" : [
            {
                "city1" : "kara",
                "city2" : "Lome"
            },
            {
                "city1" : "kara",
                "city2" : "Atakpame"
            },
            {
                "city1" : "Lome",
                "city2" : "Atakpame"
            }
        ],
        "evaluated" : 12,
        "dist" : 1.4038878160308972
    }
}
{
    "_id" : 6,
    "value" : {
        "cities" : [
            {
                "city1" : "Benguela",
                "city2" : "Sumbe"
            }
        ],
        "evaluated" : 40,
        "dist" : 1.4439615645854298
    }
}
{
    "_id" : 214,
    "value" : {
        "cities" : [
            {
                "city1" : "Saint-Louis",
                "city2" : "Linguere"
            },
            {
                "city1" : "Dakar",
                "city2" : "Kaolack"
            }
        ],
        "evaluated" : 40,
        "dist" : 1.4605632475178878
    }
}
{
    "_id" : 39,
    "value" : {
        "cities" : [
            {
                "city1" : "Taunggyi",
                "city2" : "Moulmein"
            },
            {
                "city1" : "Taunggyi",

```

```

        },
        {
            "city1": "Moulmein",
            "city2": "Yangon"
        }
    ],
    "evaluated": 12,
    "dist": 1.493065638208844
}
{
    "_id": 218,
    "value": {
        "cities": [
            {
                "city1": "Bo",
                "city2": "Freetown"
            }
        ],
        "evaluated": 4,
        "dist": 1.568367622721153
    }
}
{
    "_id": 60,
    "value": {
        "cities": [
            {
                "city1": "Abidjan",
                "city2": "Yamoussoukro"
            }
        ],
        "evaluated": 4,
        "dist": 1.9525624189766635
    }
}
{
    "_id": 128,
    "value": {
        "cities": [
            {
                "city1": "Almaty",
                "city2": "Aqtobe"
            },
            {
                "city1": "Almaty",
                "city2": "Astana"
            },
            {
                "city1": "Almaty",
                "city2": "Pavlodar"
            },
            {
                "city1": "Almaty",
                "city2": "Karaganda"
            },
            {
                "city1": "Almaty",
                "city2": "Zhambyl"
            },
            {
                "city1": "Astana",
                "city2": "Karaganda"
            }
        ],
        "evaluated": 180,
        "dist": 2.1004687572063494
    }
}
{
    "_id": 148,
    "value": {
        "cities": [
            {
                "city1": "Lilongwe",
                "city2": "Blantyre"
            }
        ],
        "evaluated": 4,
        "dist": 2.1728067102252773
    }
}
{

```

```

    "_id" : 237,
    "value" : {
      "cities" : [
        {
          "city1" : "Dushanbe",
          "city2" : "Khujand"
        }
      ],
      "evaluated" : 4,
      "dist" : 2.223708838854585
    }
  }
  {
    "_id" : 44,
    "value" : {
      "cities" : [
        {
          "city1" : "Praia",
          "city2" : "Mindelo"
        }
      ],
      "evaluated" : 4,
      "dist" : 2.462609388433334
    }
  }
  {
    "_id" : 257,
    "value" : {
      "cities" : [
        {
          "city1" : "Bukhara",
          "city2" : "Urgench"
        },
        {
          "city1" : "Bukhara",
          "city2" : "Samarkand"
        }
      ],
      "evaluated" : 24,
      "dist" : 2.5338906843034796
    }
  }
  {
    "_id" : 273,
    "value" : {
      "cities" : [
        {
          "city1" : "Kitwe",
          "city2" : "Lusaka"
        }
      ],
      "evaluated" : 4,
      "dist" : 2.601324470341983
    }
  }
  {
    "_id" : 151,
    "value" : {
      "cities" : [
        {
          "city1" : "Bamako",
          "city2" : "Tombouctou"
        },
        {
          "city1" : "Bamako",
          "city2" : "Gao"
        }
      ],
      "evaluated" : 12,
      "dist" : 2.9154759474226504
    }
  }
  {
    "_id" : 1,
    "value" : {
      "cities" : [
        {
          "city1" : "Herat",
          "city2" : "Kabul"
        },
        {
          "city1" : "Herat",
          "city2" : "Mazar-e Sharif"
        }
      ],

```

```

        {
            "city1": "Kabul",
            "city2": "Mazar-e Sharif"
        },
        "evaluated": 12,
        "dist": 3.0173461849777947
    }
}
{
    "_id": 223,
    "value": {
        "cities": [
            {
                "city1": "Muqdisho",
                "city2": "Bereeda"
            },
            {
                "city1": "Muqdisho",
                "city2": "Borama"
            }
        ],
        "evaluated": 24,
        "dist": 3.1381806831347365
    }
}
{
    "_id": 147,
    "value": {
        "cities": [
            {
                "city1": "Madagascar",
                "city2": "Nosy-Be"
            },
            {
                "city1": "Madagascar",
                "city2": "Antananarivo"
            },
            {
                "city1": "Nosy-Be",
                "city2": "Antananarivo"
            },
            {
                "city1": "Nosy-Be",
                "city2": "Tulear"
            }
        ],
        "evaluated": 24,
        "dist": 3.7968195018989292
    }
}
{
    "_id": 135,
    "value": {
        "cities": [
            {
                "city1": "Bishkek",
                "city2": "Karakol"
            }
        ],
        "evaluated": 4,
        "dist": 3.8227789486184114
    }
}
{
    "_id": 76,
    "value": {
        "cities": [
            {
                "city1": "Axum",
                "city2": "Addis Ababa"
            }
        ],
        "evaluated": 4,
        "dist": 5.10002833325463
    }
}
{
    "_id": 229,
    "value": {
        "cities": [
            {
                "city1": "Khartoum",
                "city2": "Port Sudan"
            }
        ]
    }
}

```

```

        },
        "evaluated" : 4,
        "dist" : 6.181634156919997
    }
}
{
    "_id" : 96,
    "value" : {
        "cities" : [
            {
                "city1" : "Kangerlussuaq",
                "city2" : "Nuuk"
            },
            {
                "city1" : "Nuuk",
                "city2" : "Upernavik"
            }
        ],
        "evaluated" : 12,
        "dist" : 9.679723544089475
    }
}
{
    "_id" : 169,
    "value" : {
        "cities" : [
            {
                "city1" : "Maputo",
                "city2" : "Nampula"
            }
        ],
        "evaluated" : 4,
        "dist" : 12.736202613024027
    }
}
{
    "_id" : 74,
    "value" : {
        "cities" : [
            {
                "city1" : "Taiping",
                "city2" : "Asmara"
            }
        ],
        "evaluated" : 4,
        "dist" : 41.84351058407982
    }
}
{
    "_id" : 217,
    "value" : {
        "cities" : [
            {
                "city1" : "Victoria",
                "city2" : "Anse aux Pins"
            }
        ],
        "evaluated" : 4,
        "dist" : 78.71779796461789
    }
}
{
    "_id" : 57,
    "value" : {
        "cities" : [
            {
                "city1" : "Avarua",
                "city2" : "Rarotonga"
            }
        ],
        "evaluated" : 4,
        "dist" : 161.16741075353912
    }
}
{
    "_id" : 154,
    "value" : {
        "cities" : [
            {
                "city1" : "Kwajalein",
                "city2" : "Majuro"
            }
        ],

```

```
        "evaluated" : 4,
        "dist" : 171.53000521483116
    }
}
{
    "_id" : 8,
    "value" : {
        "cities" : [
            {
                "city1" : "Molodesjnaja",
                "city2" : "McMurdo Station"
            }
        ],
        "evaluated" : 8,
        "dist" : 183.962470629202
    }
}
```

5.

```
{
    "_id" : 113,
    "value" : {
        "cities" : [
            {
                "city1" : "Port Blair",
                "city2" : "Anantapur"
            },
            {
                "city1" : "Port Blair",
                "city2" : "Banganapalle"
            },
            {
                "city1" : "Port Blair",
                "city2" : "Bapatla"
            },
            {
                "city1" : "Port Blair",
                "city2" : "Bhimavaram"
            },
            {
                "city1" : "Port Blair",
                "city2" : "Kakinada"
            },
            {
                "city1" : "Port Blair",
                "city2" : "Srikakulam"
            },
            {
                "city1" : "Port Blair",
                "city2" : "Bhubaneswar"
            },
            {
                "city1" : "Port Blair",
                "city2" : "Ganjam"
            },
            {
                "city1" : "Port Blair",
                "city2" : "Puri"
            },
            {
                "city1" : "Anantapur",
                "city2" : "Banganapalle"
            },
            {
                "city1" : "Anantapur",
                "city2" : "Bellary"
            },
            {
                "city1" : "Banganapalle",
                "city2" : "Chapirevula"
            },
            {
                "city1" : "Bapatla",
                "city2" : "Chirala"
            },
            {
                "city1" : "Chapirevula",
                "city2" : "Nandyal"
            },
            {
                "city1" : "Guntur",
                "city2" : "New Guntur"
            },
            {
                "city1" : "Kadapa",

```

```

        },
        {
            "city1" : "Katni",
            "city2" : "Murwara"
        }
    ],
    "avgDistance" : 447.3741210627781,
    "dist" : 0.001341640786496747
}
{
    "_id" : 133,
    "value" : {
        "cities" : [
            {
                "city1" : "Pusan-Kuso-2-dong",
                "city2" : "Jeju"
            },
            {
                "city1" : "Pusan-Kuso-2-dong",
                "city2" : "Inchon"
            },
            {
                "city1" : "Jeju",
                "city2" : "Pohang"
            },
            {
                "city1" : "Anyang",
                "city2" : "Chonju"
            },
            {
                "city1" : "Chongju",
                "city2" : "Chungju"
            }
        ],
        "avgDistance" : 1011.2338105979841,
        "dist" : 0.003026549190084301
    }
}
{
    "_id" : 93,
    "value" : {
        "cities" : [
            {
                "city1" : "Algeciras",
                "city2" : "La Linea"
            }
        ],
        "avgDistance" : 0.00000999999999999574,
        "dist" : 0.003162277660168312
    }
}
{
    "_id" : 199,
    "value" : {
        "cities" : [
            {
                "city1" : "Aguadilla",
                "city2" : "Aibonito"
            },
            {
                "city1" : "Aguadilla",
                "city2" : "Arecibo"
            },
            {
                "city1" : "Aguadilla",
                "city2" : "Cabo Rojo"
            },
            {
                "city1" : "Aguadilla",
                "city2" : "Isabela"
            },
            {
                "city1" : "Aibonito",
                "city2" : "Barranquitas"
            },
            {
                "city1" : "Canovanas",
                "city2" : "Carolina"
            },
            {
                "city1" : "Guaynabo",
                "city2" : "Bayamon"
            }
        ]
    }
}

```

```

        },
        {
            "city1": "Mayagüez",
            "city2": "Santurce"
        }
    ],
    "avgDistance": 0.6157010451282046,
    "dist": 0.006082762530299229
}
}
{
    "_id": 219,
    "value": {
        "cities": [
            {
                "city1": "Bedok",
                "city2": "Bishan"
            },
            {
                "city1": "Bedok",
                "city2": "Pasir Ris"
            },
            {
                "city1": "Bedok",
                "city2": "Tampines"
            },
            {
                "city1": "Bishan",
                "city2": "Serangoon"
            },
            {
                "city1": "Bishan",
                "city2": "Toa Payoh"
            }
        ],
        "avgDistance": 0.013826499999999811,
        "dist": 0.01044030650891059
    }
}
{
    "_id": 118,
    "value": {
        "cities": [
            {
                "city1": "Beer-Sheva",
                "city2": "Dimona"
            },
            {
                "city1": "Beer-Sheva",
                "city2": "Hevron"
            },
            {
                "city1": "Ashdod",
                "city2": "Hatzor"
            },
            {
                "city1": "Ness Ziona",
                "city2": "Rehovot"
            },
            {
                "city1": "Petach Tikva",
                "city2": "Petah Tiqva"
            },
            {
                "city1": "Givatayim",
                "city2": "Ramat Gan"
            }
        ],
        "avgDistance": 231.46414594167513,
        "dist": 0.011180339887502127
    }
}
{
    "_id": 65,
    "value": {
        "cities": [
            {
                "city1": "Aabyhoj",
                "city2": "Arhus"
            },
            {
                "city1": "Arhus",
                "city2": "Arhus"
            }
        ]
    }
}

```



```

    ],
    "avgDistance" : 4.670009196625806,
    "dist" : 0.011253888216966372
  }
}
{
  "_id" : 253,
  "value" : {
    "cities" : [
      {
        "city1" : "AOL",
        "city2" : "Aberystwyth"
      },
      {
        "city1" : "AOL",
        "city2" : "Bangor"
      },
      {
        "city1" : "AOL",
        "city2" : "Betws-y-Coed"
      },
      {
        "city1" : "AOL",
        "city2" : "Hawarden"
      },
      {
        "city1" : "AOL",
        "city2" : "Alsagers Bank"
      },
      {
        "city1" : "AOL",
        "city2" : "Altrincham"
      },
      {
        "city1" : "AOL",
        "city2" : "Barnsley"
      },
      {
        "city1" : "AOL",
        "city2" : "Blackburn"
      },
      {
        "city1" : "AOL",
        "city2" : "Bradford"
      },
      {
        "city1" : "AOL",
        "city2" : "Halifax"
      },
      {
        "city1" : "AOL",
        "city2" : "Keighley"
      },
      {
        "city1" : "Mold",
        "city2" : "Hawarden"
      },
      {
        "city1" : "Cumbernauld",
        "city2" : "Plains"
      },
      {
        "city1" : "Dunblane",
        "city2" : "Stirling"
      },
      {
        "city1" : "Dunfermline",
        "city2" : "Inverkeithing"
      },
      {
        "city1" : "Hamilton",
        "city2" : "Motherwell"
      },
      {
        "city1" : "Carrickfergus",
        "city2" : "Whitehead"
      },
      {
        "city1" : "East Preston",
        "city2" : "Rustington"
      },
      {
        "city1" : "Ilford",
        "city2" : "Barking"
      }
    ]
  }
}

```

```

        },
        {
            "city1": "Saint Albans",
            "city2": "St Albans"
        }
    ],
    "avgDistance": 62.17811704707276,
    "dist": 0.011677589648553196
}
{
    "_id": 186,
    "value": {
        "cities": [
            {
                "city1": "Sur",
                "city2": "Masqat"
            },
            {
                "city1": "Sur",
                "city2": "Muscat"
            },
            {
                "city1": "Masqat",
                "city2": "Muscat"
            }
        ],
        "avgDistance": 0.9896901333333373,
        "dist": 0.01173882447265839
    }
}
{
    "_id": 49,
    "value": {
        "cities": [
            {
                "city1": "Alar",
                "city2": "Anqing"
            },
            {
                "city1": "Alar",
                "city2": "Bose"
            },
            {
                "city1": "Alar",
                "city2": "Madoi"
            },
            {
                "city1": "Alar",
                "city2": "Golmud"
            },
            {
                "city1": "Alar",
                "city2": "Lenghu"
            },
            {
                "city1": "Alar",
                "city2": "Mangnai"
            },
            {
                "city1": "Alar",
                "city2": "Arxan"
            },
            {
                "city1": "Alar",
                "city2": "Bachu"
            },
            {
                "city1": "Alar",
                "city2": "Kashi"
            },
            {
                "city1": "Anqing",
                "city2": "Bose"
            },
            {
                "city1": "Anqing",
                "city2": "Gaoyao"
            },
            {
                "city1": "Anqing",
                "city2": "Hefei"
            }
        ]
    }
}

```

```

        "city1" : "Anqing",
        "city2" : "Huang Shan"
      },
      {
        "city1" : "Anqing",
        "city2" : "Huoshan"
      },
      {
        "city1" : "Bose",
        "city2" : "Napo"
      },
      {
        "city1" : "Hefei",
        "city2" : "Huoshan"
      },
      {
        "city1" : "Huang Shan",
        "city2" : "Taiyuan"
      },
      {
        "city1" : "Changbai",
        "city2" : "Dinghai"
      },
      {
        "city1" : "Dongfang",
        "city2" : "Dongsheng"
      },
      {
        "city1" : "Nanjing",
        "city2" : "Nanjing Jiangsu"
      }
    ],
    "avgDistance" : 4480.407217743266,
    "dist" : 0.012165525060596124
  }
}
{
  "_id" : 152,
  "value" : {
    "cities" : [
      {
        "city1" : "Attard",
        "city2" : "Birzebbugia"
      },
      {
        "city1" : "Attard",
        "city2" : "Cospicua"
      },
      {
        "city1" : "Attard",
        "city2" : "Ghaxaq"
      },
      {
        "city1" : "Attard",
        "city2" : "Gudja"
      },
      {
        "city1" : "Attard",
        "city2" : "Luqa"
      },
      {
        "city1" : "Attard",
        "city2" : "Mosta"
      },
      {
        "city1" : "Attard",
        "city2" : "Saint Venera"
      },
      {
        "city1" : "Cospicua",
        "city2" : "Tarxien"
      },
      {
        "city1" : "Cospicua",
        "city2" : "Valletta"
      },
      {
        "city1" : "Ghaxaq",
        "city2" : "Gudja"
      },
      {
        "city1" : "Saint Julians",
        "city2" : "Sliema"
      }
    ]
  }
}

```

```

    ],
    "avgDistance" : 0.020965351238095186,
    "dist" : 0.012440257232068867
  }
}
{
  "_id" : 138,
  "value" : {
    "cities" : [
      {
        "city1" : "Amioun",
        "city2" : "Tripoli"
      },
      {
        "city1" : "Ashrafieh",
        "city2" : "Beirut"
      }
    ],
    "avgDistance" : 0.147976266666666563,
    "dist" : 0.013038404810410333
  }
}
{
  "_id" : 99,
  "value" : {
    "cities" : [
      {
        "city1" : "Agana",
        "city2" : "Agat"
      },
      {
        "city1" : "Agana",
        "city2" : "Dededo"
      },
      {
        "city1" : "Agana",
        "city2" : "Maite"
      },
      {
        "city1" : "Maite",
        "city2" : "Tamuning"
      }
    ],
    "avgDistance" : 7686.7839720718175,
    "dist" : 0.01592607924127576
  }
}
{
  "_id" : 120,
  "value" : {
    "cities" : [
      {
        "city1" : "Amity Hall",
        "city2" : "Chapelton"
      },
      {
        "city1" : "Amity Hall",
        "city2" : "Denbigh"
      },
      {
        "city1" : "Amity Hall",
        "city2" : "Four Paths"
      },
      {
        "city1" : "Amity Hall",
        "city2" : "Rhymesbury"
      },
      {
        "city1" : "Lethe",
        "city2" : "Anchovy"
      },
      {
        "city1" : "Lethe",
        "city2" : "Mount Carey"
      },
      {
        "city1" : "Gregory Park",
        "city2" : "Passage Fort"
      }
    ],
    "avgDistance" : 0.5386739402485646,
    "dist" : 0.0159999999999991132
  }
}

```

```

{
  "_id" : 10,
  "value" : {
    "cities" : [
      {
        "city1" : "Bahia Blanca",
        "city2" : "Berazategui"
      },
      {
        "city1" : "Bahia Blanca",
        "city2" : "Caseros"
      },
      {
        "city1" : "Bahia Blanca",
        "city2" : "Castelar"
      },
      {
        "city1" : "Bahia Blanca",
        "city2" : "Chacabuco"
      },
      {
        "city1" : "Bahia Blanca",
        "city2" : "Miramar"
      },
      {
        "city1" : "Bahia Blanca",
        "city2" : "Tres Arroyos"
      },
      {
        "city1" : "Berazategui",
        "city2" : "Caseros"
      },
      {
        "city1" : "Berazategui",
        "city2" : "Ezeiza"
      },
      {
        "city1" : "Berazategui",
        "city2" : "La Plata"
      },
      {
        "city1" : "Berazategui",
        "city2" : "Lomas De Zamora"
      },
      {
        "city1" : "Caseros",
        "city2" : "Castelar"
      },
      {
        "city1" : "Caseros",
        "city2" : "Haedo"
      },
      {
        "city1" : "Caseros",
        "city2" : "Ramos Mejia"
      },
      {
        "city1" : "Caseros",
        "city2" : "San Martin"
      },
      {
        "city1" : "Haedo",
        "city2" : "Ramos Mejia"
      },
      {
        "city1" : "Turdera",
        "city2" : "Lomas De Zamora"
      }
    ],
    "avgDistance" : 80.50303272308867,
    "dist" : 0.015999999999998238
  }
}
{
  "_id" : 68,
  "value" : {
    "cities" : [
      {
        "city1" : "Azua",
        "city2" : "El Cacao"
      },
      {
        "city1" : "El Cacao",
        "city2" : "Rancho Arriba"
      }
    ]
  }
}

```

```

        },
        {
            "city1" : "Tabara Arriba",
            "city2" : "Yayas De Viajama"
        },
        {
            "city1" : "Tamayo",
            "city2" : "Ubilla"
        },
        {
            "city1" : "Tamayo",
            "city2" : "Vicente Noble"
        },
        {
            "city1" : "Bahoruco",
            "city2" : "La Cienaga"
        }
    ],
    "avgDistance" : 1.7538054011658997,
    "dist" : 0.015999999999998238
}
}
{
    "_id" : 5,
    "value" : {
        "cities" : [
            {
                "city1" : "Andorra La Vella",
                "city2" : "Escaldes"
            }
        ],
        "avgDistance" : 0.0002560000000000005,
        "dist" : 0.016000000000000014
    }
}
{
    "_id" : 198,
    "value" : {
        "cities" : [
            {
                "city1" : "Aveiro",
                "city2" : "Santo João da Madeira"
            },
            {
                "city1" : "Santo João da Madeira",
                "city2" : "Matosinhos"
            },
            {
                "city1" : "Santo João da Madeira",
                "city2" : "Paços de brandão"
            },
            {
                "city1" : "Lagoa",
                "city2" : "Vila Real de Santo António"
            },
            {
                "city1" : "Quarteira",
                "city2" : "Vilamoura"
            },
            {
                "city1" : "Amadora",
                "city2" : "Queluz"
            },
            {
                "city1" : "Carcavelos",
                "city2" : "Oeiras"
            }
        ],
        "avgDistance" : 123.79649484813035,
        "dist" : 0.016000000000000014
    }
}
{
    "_id" : 243,
    "value" : {
        "cities" : [
            {
                "city1" : "Arima",
                "city2" : "Charuma"
            },
            {
                "city1" : "Arima",
                "city2" : "Coryal"
            }
        ],
    }
}

```

```

        {
            "city1" : "Arima",
            "city2" : "Carmichael"
        },
        {
            "city1" : "Arima",
            "city2" : "Cunaripa"
        },
        {
            "city1" : "Arima",
            "city2" : "Hasnalli"
        },
        {
            "city1" : "Arima",
            "city2" : "Brasso Seco Village"
        },
        {
            "city1" : "Arima",
            "city2" : "Tunapuna"
        },
        {
            "city1" : "Charuma",
            "city2" : "Biche"
        },
        {
            "city1" : "Biche",
            "city2" : "Plum Mitan"
        },
        {
            "city1" : "CuChe",
            "city2" : "Navet"
        },
        {
            "city1" : "Cheeyou",
            "city2" : "Sangre Grande"
        },
        {
            "city1" : "Guaico Tamana",
            "city2" : "Mamon"
        }
    ],
    "avgDistance" : 0.24583907837445604,
    "dist" : 0.0160000000000000014
}
{
    "_id" : 14,
    "value" : {
        "cities" : [
            {
                "city1" : "Ascot Vale",
                "city2" : "Bacchus Marsh"
            },
            {
                "city1" : "Ascot Vale",
                "city2" : "Bayswater"
            },
            {
                "city1" : "Ascot Vale",
                "city2" : "Chelsea"
            },
            {
                "city1" : "Ascot Vale",
                "city2" : "Cheltenham"
            },
            {
                "city1" : "Ascot Vale",
                "city2" : "Deer Park"
            },
            {
                "city1" : "Ascot Vale",
                "city2" : "Hawthorn"
            },
            {
                "city1" : "Ascot Vale",
                "city2" : "Melbourne"
            },
            {
                "city1" : "Dandenong",
                "city2" : "Noble Park"
            },
            {
                "city1" : "Melbourne",
                "city2" : "South Yarra"
            }
        ]
    }
}
```

```

        },
        {
            "city1": "Kalgoorlie",
            "city2": "Williamstown"
        }
    ],
    "avgDistance": 294.8052085859778,
    "dist": 0.016000000000005343
}
{
    "_id": 190,
    "value": {
        "cities": [
            {
                "city1": "Bocas Del Toro",
                "city2": "Changuinola"
            },
            {
                "city1": "Alanje",
                "city2": "Chiriqui"
            },
            {
                "city1": "Alanje",
                "city2": "David"
            },
            {
                "city1": "Alanje",
                "city2": "San Mateo"
            },
            {
                "city1": "Bambito",
                "city2": "Cerro Punta"
            },
            {
                "city1": "David",
                "city2": "El Varital"
            }
        ],
        "avgDistance": 3.469164163492047,
        "dist": 0.016000000000005343
    }
}
{
    "_id": 82,
    "value": {
        "cities": [
            {
                "city1": "Anglet",
                "city2": "Arcachon"
            },
            {
                "city1": "Anglet",
                "city2": "Bayonne"
            },
            {
                "city1": "Anglet",
                "city2": "Biarritz"
            },
            {
                "city1": "Arcachon",
                "city2": "La Teste"
            },
            {
                "city1": "Saint-Germain-en-Laye",
                "city2": "Le Vesinet"
            },
            {
                "city1": "Clichy",
                "city2": "Levallois-Perret"
            },
            {
                "city1": "Colombes",
                "city2": "Courbevoic"
            }
        ],
        "avgDistance": 48.36501902481574,
        "dist": 0.0166000000000003945
    }
}
{
    "_id": 195,
    "value": {
        "cities": [

```



```

        {
            "city1" : "Butuan City",
            "city2" : "Legaspi"
        },
        {
            "city1" : "Butuan City",
            "city2" : "Batangas"
        },
        {
            "city1" : "Butuan City",
            "city2" : "Naga City"
        },
        {
            "city1" : "Butuan City",
            "city2" : "Roxas"
        },
        {
            "city1" : "Butuan City",
            "city2" : "Lapu-Lapu City"
        },
        {
            "city1" : "Butuan City",
            "city2" : "Cagayan De Oro"
        },
        {
            "city1" : "Legaspi",
            "city2" : "Angeles City"
        },
        {
            "city1" : "Legaspi",
            "city2" : "Alaminos"
        },
        {
            "city1" : "Legaspi",
            "city2" : "Dagupan City"
        },
        {
            "city1" : "Legaspi",
            "city2" : "Baguio"
        },
        {
            "city1" : "Batangas",
            "city2" : "Tagaytay"
        },
        {
            "city1" : "Batangas",
            "city2" : "Lipa City"
        },
        {
            "city1" : "Cavite City",
            "city2" : "Cainta"
        },
        {
            "city1" : "Cavite City",
            "city2" : "Muntinlupa"
        },
        {
            "city1" : "Cavite City",
            "city2" : "Las Pinas City"
        },
        {
            "city1" : "Lapu-Lapu City",
            "city2" : "Cebu"
        },
        {
            "city1" : "Laguna",
            "city2" : "Dumaguete City"
        },
        {
            "city1" : "Las Pinas City",
            "city2" : "Parañaque"
        }
    ],
    "avgDistance" : 25.216426934150967,
    "dist" : 0.016700000000000016
}
{
    "_id" : 43,
    "value" : {
        "cities" : [
            {
                "city1" : "Acton Vale",
                "city2" : "Amqui"
            }
        ]
    }
}
```

```

        },
        {
            "city1" : "Acton Vale",
            "city2" : "Aylmer"
        },
        {
            "city1" : "Acton Vale",
            "city2" : "Bagotville"
        },
        {
            "city1" : "Acton Vale",
            "city2" : "Baie Du Febvre"
        },
        {
            "city1" : "Acton Vale",
            "city2" : "Cowansville"
        },
        {
            "city1" : "Acton Vale",
            "city2" : "Granby"
        },
        {
            "city1" : "Aylmer",
            "city2" : "Gatineau"
        },
        {
            "city1" : "Aylmer",
            "city2" : "Hull"
        },
        {
            "city1" : "Aylmer",
            "city2" : "Kanata"
        },
        {
            "city1" : "Bagotville",
            "city2" : "La Baie"
        },
        {
            "city1" : "La Salle",
            "city2" : "Lachine"
        }
    ],
    "avgDistance" : 969.5229726893882,
    "dist" : 0.0169999999999995907
}
{
    "_id" : 59,
    "value" : {
        "cities" : [
            {
                "city1" : "Quesada",
                "city2" : "Cartago"
            },
            {
                "city1" : "Quesada",
                "city2" : "Heredia"
            },
            {
                "city1" : "Cartago",
                "city2" : "Turrialba"
            },
            {
                "city1" : "Cartago",
                "city2" : "Curridabat"
            },
            {
                "city1" : "Curridabat",
                "city2" : "Heredia"
            },
            {
                "city1" : "Curridabat",
                "city2" : "Escazu"
            },
            {
                "city1" : "Curridabat",
                "city2" : "San Francisco De Dos Rios"
            }
        ],
        "avgDistance" : 856.4245085925929,
        "dist" : 0.0169999999999995907
    }
}
{

```

```

    "_id" : 104,
    "value" : {
      "cities" : [
        {
          "city1" : "Jonestown",
          "city2" : "Albion"
        },
        {
          "city1" : "Jonestown",
          "city2" : "MAHAICA"
        },
        {
          "city1" : "Jonestown",
          "city2" : "NEW AMSTERDAM"
        },
        {
          "city1" : "Jonestown",
          "city2" : "OREALLA"
        },
        {
          "city1" : "Jonestown",
          "city2" : "SKELDON"
        },
        {
          "city1" : "Albion",
          "city2" : "Georgetown"
        },
        {
          "city1" : "SKELDON",
          "city2" : "SPRINGLANDS"
        },
        {
          "city1" : "Linden",
          "city2" : "MACKENZIE"
        }
      ],
      "avgDistance" : 309.83754442173904,
      "dist" : 0.0169999999999995907
    }
  }
}
{
  "_id" : 226,
  "value" : {
    "cities" : [
      {
        "city1" : "Ciudadela",
        "city2" : "Ibiza"
      },
      {
        "city1" : "Ciudadela",
        "city2" : "Palma de Mallorca"
      },
      {
        "city1" : "Ciudadela",
        "city2" : "Petra"
      },
      {
        "city1" : "Palma de Mallorca",
        "city2" : "Petra"
      },
      {
        "city1" : "Palma de Mallorca",
        "city2" : "Valldemosa"
      },
      {
        "city1" : "Alcalá De Henares",
        "city2" : "Daganzo de Arriba"
      },
      {
        "city1" : "Cadiz",
        "city2" : "El Puerto De Santa Maria"
      },
      {
        "city1" : "Badalona",
        "city2" : "Manresa"
      }
    ],
    "avgDistance" : 65.61424776406251,
    "dist" : 0.016999999999999904
  }
}
{
  "_id" : 114,
  "value" : {

```

```

        "cities" : [
            {
                "city1" : "Denpasar",
                "city2" : "Klungkung"
            },
            {
                "city1" : "Denpasar",
                "city2" : "Kuta"
            },
            {
                "city1" : "Depok",
                "city2" : "Yogyakarta"
            },
            {
                "city1" : "Karawaci",
                "city2" : "Tangerang"
            }
        ],
        "avgDistance" : 1199.0940593888763,
        "dist" : 0.017000000000000348
    }
}
{
    "_id" : 122,
    "value" : {
        "cities" : [
            {
                "city1" : "Hachijojima",
                "city2" : "Anjo"
            },
            {
                "city1" : "Hachijojima",
                "city2" : "Kasugai"
            },
            {
                "city1" : "Hachijojima",
                "city2" : "Toyokawa"
            },
            {
                "city1" : "Hachijojima",
                "city2" : "Kitami"
            },
            {
                "city1" : "Anjo",
                "city2" : "Okazaki"
            },
            {
                "city1" : "Chiba",
                "city2" : "Yotsukaido"
            },
            {
                "city1" : "Funabashi",
                "city2" : "Kamagaya"
            },
            {
                "city1" : "Funabashi",
                "city2" : "Narashino"
            },
            {
                "city1" : "Imazu",
                "city2" : "Iwakuni"
            },
            {
                "city1" : "Kushiro",
                "city2" : "Kawanishi"
            }
        ],
        "avgDistance" : 60.96515460528572,
        "dist" : 0.0170000000000003013
    }
}
{
    "_id" : 183,
    "value" : {
        "cities" : [
            {
                "city1" : "Burnt Pine",
                "city2" : "Kingston"
            }
        ],
        "avgDistance" : 0.00039999999999998294,
        "dist" : 0.019999999999999574
    }
}

```

```

{
  "_id" : 134,
  "value" : {
    "cities" : [
      {
        "city1" : "Al Sharq",
        "city2" : "Khalidia"
      },
      {
        "city1" : "Al Sharq",
        "city2" : "Kuwait"
      }
    ],
    "avgDistance" : 1458.8387173423068,
    "dist" : 0.02017176244158732
  }
}
{
  "_id" : 91,
  "value" : {
    "cities" : [
      {
        "city1" : "Aalen",
        "city2" : "Albstadt"
      },
      {
        "city1" : "Aalen",
        "city2" : "Bad Urach"
      },
      {
        "city1" : "Aalen",
        "city2" : "Crailsheim"
      },
      {
        "city1" : "Aalen",
        "city2" : "Ellwangen"
      },
      {
        "city1" : "Aalen",
        "city2" : "Waiblingen"
      },
      {
        "city1" : "Friedlheim",
        "city2" : "Wiernsheim"
      },
      {
        "city1" : "Gedern",
        "city2" : "Witten"
      },
      {
        "city1" : "Mannheim",
        "city2" : "Ludwigshafen Am Rhein"
      }
    ],
    "avgDistance" : 58.52362458791044,
    "dist" : 0.020591260281973632
  }
}
{
  "_id" : 194,
  "value" : {
    "cities" : [
      {
        "city1" : "Caras",
        "city2" : "Chimbote"
      },
      {
        "city1" : "Caras",
        "city2" : "Andahuaylas"
      },
      {
        "city1" : "Caras",
        "city2" : "Cajamarca"
      },
      {
        "city1" : "Caras",
        "city2" : "Trujillo"
      },
      {
        "city1" : "Aplao",
        "city2" : "Arequipa"
      },
      {
        "city1" : "Aplao",

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        "city2" : "Camana"
      },
      {
        "city1" : "Arequipa",
        "city2" : "Cayma"
      }
    ],
    "avgDistance" : 58.62507829367616,
    "dist" : 0.021633307652784758
  }
}
{
  "_id" : 159,
  "value" : {
    "cities" : [
      {
        "city1" : "Agua Prieta",
        "city2" : "Caborca"
      },
      {
        "city1" : "Agua Prieta",
        "city2" : "Cananea"
      },
      {
        "city1" : "Cananea",
        "city2" : "Torreon"
      },
      {
        "city1" : "Cumpas",
        "city2" : "Nacozari De Garcia"
      },
      {
        "city1" : "Empalme",
        "city2" : "Guaymas"
      },
      {
        "city1" : "Guadalajara",
        "city2" : "Tlaquepaque"
      },
      {
        "city1" : "Cancun",
        "city2" : "Puerto Juarez"
      }
    ],
    "avgDistance" : 268.71439205349895,
    "dist" : 0.022627416997972053
  }
}
{
  "_id" : 221,
  "value" : {
    "cities" : [
      {
        "city1" : "Celje",
        "city2" : "Velenje"
      },
      {
        "city1" : "Celje",
        "city2" : "Hrastnik"
      },
      {
        "city1" : "Sentjost",
        "city2" : "Kranj"
      },
      {
        "city1" : "Sentjost",
        "city2" : "Naklo"
      }
    ],
    "avgDistance" : 1.452395122807018,
    "dist" : 0.023000000000000324
  }
}
{
  "_id" : 109,
  "value" : {
    "cities" : [
      {
        "city1" : "Chai Wan",
        "city2" : "Fanling"
      },
      {
        "city1" : "Chai Wan",
        "city2" : "Hong Kong"
      }
    ]
  }
}

```

```

        },
        {
            "city1": "Chai Wan",
            "city2": "Kowloon"
        },
        {
            "city1": "Chai Wan",
            "city2": "Kwun Tong"
        },
        {
            "city1": "Fanling",
            "city2": "Sheung Shui"
        }
    ],
    "avgDistance": 0.030033615384615395,
    "dist": 0.023345235059851033
}
}
{
    "_id": 193,
    "value": {
        "cities": [
            {
                "city1": "Ciudad Del Este",
                "city2": "Capiata"
            },
            {
                "city1": "Capiata",
                "city2": "Fernando De La Mora"
            },
            {
                "city1": "Capiata",
                "city2": "Luque"
            },
            {
                "city1": "Fernando De La Mora",
                "city2": "Lambare"
            },
            {
                "city1": "Fernando De La Mora",
                "city2": "Villa Elisa"
            },
            {
                "city1": "Lambare",
                "city2": "Villa Elisa"
            },
            {
                "city1": "Limpio",
                "city2": "Mariano Roque Alonso"
            }
        ],
        "avgDistance": 6.0691184363636435,
        "dist": 0.02334523505985332
    }
}
{
    "_id": 149,
    "value": {
        "cities": [
            {
                "city1": "Batu Pahat",
                "city2": "Johor Baharu"
            },
            {
                "city1": "Batu Pahat",
                "city2": "Kluang"
            },
            {
                "city1": "Batu Pahat",
                "city2": "Muar"
            },
            {
                "city1": "Johor Baharu",
                "city2": "Kota Tinggi"
            },
            {
                "city1": "Alor Setar",
                "city2": "Jitra"
            },
            {
                "city1": "Arau",
                "city2": "Kangar"
            }
        ]
    }
}

```

```

        "city1" : "Butterworth",
        "city2" : "Prai"
    },
    {
        "city1" : "Ampang",
        "city2" : "Ulu Kelang"
    },
    {
        "city1" : "Kuala Lumpur",
        "city2" : "Sentul"
    }
],
"avgDistance" : 703.860614781157,
"dist" : 0.023345235059854533
}
}
{
    "_id" : 234,
    "value" : {
        "cities" : [
            {
                "city1" : "Aarau",
                "city2" : "Baden"
            },
            {
                "city1" : "Aarau",
                "city2" : "Brugg"
            },
            {
                "city1" : "Aarau",
                "city2" : "Lenzburg"
            },
            {
                "city1" : "Baden",
                "city2" : "Bremgarten"
            },
            {
                "city1" : "Baden",
                "city2" : "Brugg"
            },
            {
                "city1" : "Bremgarten",
                "city2" : "Wohlen"
            },
            {
                "city1" : "Lausanne",
                "city2" : "Pully"
            }
        ],
        "avgDistance" : 125.03839968639511,
        "dist" : 0.023345235059855904
    }
}
{
    "_id" : 175,
    "value" : {
        "cities" : [
            {
                "city1" : "Assen",
                "city2" : "Beilen"
            },
            {
                "city1" : "Hoogeveen",
                "city2" : "Zuidwolde"
            },
            {
                "city1" : "Arnhem",
                "city2" : "Oosterbeek"
            },
            {
                "city1" : "Ede",
                "city2" : "Wageningen"
            },
            {
                "city1" : "Eefde",
                "city2" : "Zutphen"
            },
            {
                "city1" : "Aarle-Rixtel",
                "city2" : "Helmond"
            },
            {
                "city1" : "Bilthoven",
                "city2" : "De Bilt"
            }
        ]
    }
}

```



```

    }
    ],
    "avgDistance" : 1.8386858769037022,
    "dist" : 0.02334523505986142
  }
}
{
  "_id" : 144,
  "value" : {
    "cities" : [
      {
        "city1" : "Bourscheid",
        "city2" : "Clervaux"
      },
      {
        "city1" : "Bourscheid",
        "city2" : "Diekirch"
      },
      {
        "city1" : "Bourscheid",
        "city2" : "Ettelbruck"
      },
      {
        "city1" : "Diekirch",
        "city2" : "Ettelbruck"
      },
      {
        "city1" : "Petange",
        "city2" : "Differdange"
      },
      {
        "city1" : "Strassen",
        "city2" : "Bertrange"
      }
    ],
    "avgDistance" : 0.08518650076923007,
    "dist" : 0.02339850422569853
  }
}
{
  "_id" : 48,
  "value" : {
    "cities" : [
      {
        "city1" : "Atamu Tekena",
        "city2" : "La Florida"
      },
      {
        "city1" : "Atamu Tekena",
        "city2" : "Llay-Llay"
      },
      {
        "city1" : "Atamu Tekena",
        "city2" : "Quilpue"
      },
      {
        "city1" : "Atamu Tekena",
        "city2" : "Recreo"
      },
      {
        "city1" : "Atamu Tekena",
        "city2" : "Valparaiso"
      },
      {
        "city1" : "Atamu Tekena",
        "city2" : "Chiguayante"
      },
      {
        "city1" : "Atamu Tekena",
        "city2" : "Concepcion"
      },
      {
        "city1" : "Atamu Tekena",
        "city2" : "Huachipato"
      },
      {
        "city1" : "La Florida",
        "city2" : "Llay-Llay"
      },
      {
        "city1" : "La Florida",
        "city2" : "San Fernando"
      }
    ]
  }
}

```

```

        "city1" : "Quilpue",
        "city2" : "Viña Del Mar"
    },
    {
        "city1" : "Recreo",
        "city2" : "Renaca"
    },
    {
        "city1" : "Recreo",
        "city2" : "Valparaiso"
    }
],
"avgDistance" : 115.8605760224424,
"dist" : 0.02343074902772085
}
}
{
    "_id" : 21,
    "value" : {
        "cities" : [
            {
                "city1" : "Christchurch",
                "city2" : "Bridgetown"
            },
            {
                "city1" : "Christchurch",
                "city2" : "Warrens"
            }
        ],
        "avgDistance" : 0.008080500000000032,
        "dist" : 0.024041630560339342
    }
}
{
    "_id" : 24,
    "value" : {
        "cities" : [
            {
                "city1" : "Antwerp",
                "city2" : "Arendonk"
            },
            {
                "city1" : "Antwerp",
                "city2" : "Berlaar"
            },
            {
                "city1" : "Antwerp",
                "city2" : "Bomem"
            },
            {
                "city1" : "Antwerp",
                "city2" : "Lierre"
            },
            {
                "city1" : "Antwerp",
                "city2" : "Mortsel"
            },
            {
                "city1" : "Puurs",
                "city2" : "Bomem"
            },
            {
                "city1" : "Braine-Le-Comte",
                "city2" : "Hennuyeres"
            },
            {
                "city1" : "Gent",
                "city2" : "Gentbrugge"
            },
            {
                "city1" : "Woluwe-Saint-Lambert",
                "city2" : "Woluwe-Saint-Pierre"
            }
        ],
        "avgDistance" : 1.3945331755102113,
        "dist" : 0.024041630560344366
    }
}
{
    "_id" : 53,
    "value" : {
        "cities" : [
            {
                "city1" : "Barrancas",

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```

        },
        {
            "city1": "Barrancas",
            "city2": "Arauca"
        },
        {
            "city1": "Barrancas",
            "city2": "Cucuta"
        },
        {
            "city1": "Envigado",
            "city2": "Itagui"
        },
        {
            "city1": "Bogota",
            "city2": "Santafé de Bogotá"
        }
    ],
    "avgDistance": 22.39855530212438,
    "dist": 0.025603351343134295
}
}
{
    "_id": 178,
    "value": {
        "cities": [
            {
                "city1": "Hastings",
                "city2": "Napier"
            },
            {
                "city1": "Invercargill",
                "city2": "Winton"
            },
            {
                "city1": "Albany",
                "city2": "North Shore"
            },
            {
                "city1": "Auckland",
                "city2": "North Shore"
            },
            {
                "city1": "Manukau City",
                "city2": "Papatoetoe"
            },
            {
                "city1": "North Shore",
                "city2": "Takapuna"
            }
        ],
        "avgDistance": 32.82880981286883,
        "dist": 0.027202941017479578
    }
}
{
    "_id": 259,
    "value": {
        "cities": [
            {
                "city1": "Capacho",
                "city2": "Puerto Ayacucho"
            },
            {
                "city1": "Capacho",
                "city2": "Santa Barbara"
            },
            {
                "city1": "Capacho",
                "city2": "Turmero"
            },
            {
                "city1": "Capacho",
                "city2": "Anaco"
            },
            {
                "city1": "Capacho",
                "city2": "Mantecal"
            },
            {
                "city1": "Santa Barbara",
                "city2": "San Felipe"
            },
        ],
    }
}

```

```

        {
            "city1" : "San Casimiro",
            "city2" : "San Sebastian"
        },
        {
            "city1" : "San Juan de Los Morros",
            "city2" : "San Sebastian"
        },
        {
            "city1" : "San Juan de Los Morros",
            "city2" : "Piedra Azul"
        },
        {
            "city1" : "Amuay",
            "city2" : "Judibana"
        },
        {
            "city1" : "Lagunillas",
            "city2" : "San Cristobal"
        }
    ],
    "avgDistance" : 23.15400221002624,
    "dist" : 0.031240998703627045
}
{
    "_id" : 119,
    "value" : {
        "cities" : [
            {
                "city1" : "Chieti",
                "city2" : "L'Aquila"
            },
            {
                "city1" : "Chieti",
                "city2" : "Pescara"
            },
            {
                "city1" : "Paterno",
                "city2" : "Cosenza"
            },
            {
                "city1" : "Portofino",
                "city2" : "Rapallo"
            },
            {
                "city1" : "Cardano al Campo",
                "city2" : "Gallarate"
            }
        ],
        "avgDistance" : 45.614988255014495,
        "dist" : 0.032536977425690346
    }
}
{
    "_id" : 105,
    "value" : {
        "cities" : [
            {
                "city1" : "Bourdon",
                "city2" : "Delmas"
            },
            {
                "city1" : "Delmas",
                "city2" : "Diquini"
            },
            {
                "city1" : "Delmas",
                "city2" : "MARTISSANT"
            },
            {
                "city1" : "Delmas",
                "city2" : "PETIONVILLE"
            },
            {
                "city1" : "Diquini",
                "city2" : "MARTISSANT"
            }
        ],
        "avgDistance" : 0.521235944444446,
        "dist" : 0.033000000000000125
    }
}
{
}
```

```

    "_id" : 179,
    "value" : {
      "cities" : [
        {
          "city1" : "Diriamba",
          "city2" : "Jinotepe"
        }
      ],
      "avgDistance" : 3.9942129999999998,
      "dist" : 0.033000000000000125
    }
  }
}

{
  "_id" : 233,
  "value" : {
    "cities" : [
      {
        "city1" : "Karlshamn",
        "city2" : "Karlskrona"
      },
      {
        "city1" : "Karlshamn",
        "city2" : "Olofström"
      },
      {
        "city1" : "Karlshamn",
        "city2" : "Pukavik"
      },
      {
        "city1" : "Skarsa",
        "city2" : "Söderhamn"
      },
      {
        "city1" : "Skummeslövsstrand",
        "city2" : "Båstad"
      },
      {
        "city1" : "Danderyd",
        "city2" : "Solna"
      },
      {
        "city1" : "Holmgård",
        "city2" : "Huddinge"
      }
    ],
    "avgDistance" : 34.00933419981293,
    "dist" : 0.033000000000000125
  }
}

{
  "_id" : 18,
  "value" : {
    "cities" : [
      {
        "city1" : "Al Manamah",
        "city2" : "Ar Rifa"
      },
      {
        "city1" : "Al Manamah",
        "city2" : "Muharraq"
      }
    ],
    "avgDistance" : 0.014119400000000342,
    "dist" : 0.035805027579939586
  }
}

{
  "_id" : 15,
  "value" : {
    "cities" : [
      {
        "city1" : "Eisenstadt",
        "city2" : "Güssing"
      },
      {
        "city1" : "Eisenstadt",
        "city2" : "Neudörf"
      },
      {
        "city1" : "Eisenstadt",
        "city2" : "Ebreichsdorf"
      },
      {
        "city1" : "Neudörf",

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```

        "city2" : "Wiener Neustadt"
      }
    ],
    "avgDistance" : 9.230942367465499,
    "dist" : 0.03712142238654041
  }
}
{
  "_id" : 33,
  "value" : {
    "cities" : [
      {
        "city1" : "Rio Branco",
        "city2" : "Macapá"
      },
      {
        "city1" : "Rio Branco",
        "city2" : "Manáus"
      },
      {
        "city1" : "Rio Branco",
        "city2" : "Porto Velho"
      },
      {
        "city1" : "Macapá",
        "city2" : "Barra do Corda"
      },
      {
        "city1" : "Macapá",
        "city2" : "São Luís"
      },
      {
        "city1" : "Macapá",
        "city2" : "Belém"
      },
      {
        "city1" : "Ilhéus",
        "city2" : "Itapetinga"
      },
      {
        "city1" : "Ilhéus",
        "city2" : "Salvador"
      },
      {
        "city1" : "Porto Seguro",
        "city2" : "Trancoso"
      },
      {
        "city1" : "Curitiba",
        "city2" : "São José dos Pinhais"
      },
      {
        "city1" : "Campinas",
        "city2" : "Valinhos"
      },
      {
        "city1" : "Diadema",
        "city2" : "São Bernardo do Campo"
      },
      {
        "city1" : "Praia Grande",
        "city2" : "São Vicente"
      }
    ],
    "avgDistance" : 180.8827561382804,
    "dist" : 0.03712142238654041
  }
}
{
  "_id" : 185,
  "value" : {
    "cities" : [
      {
        "city1" : "Ås",
        "city2" : "Asker"
      },
      {
        "city1" : "Ås",
        "city2" : "Kjeller"
      },
      {
        "city1" : "Ås",
        "city2" : "Sandvika"
      },
    ]
  }
}

```

```

        {
            "city1" : "Ås",
            "city2" : "Son"
        },
        {
            "city1" : "Asker",
            "city2" : "Sandvika"
        },
        {
            "city1" : "Asker",
            "city2" : "Slemmestad"
        },
        {
            "city1" : "Frogner",
            "city2" : "Gjerdrum"
        },
        {
            "city1" : "Kjeller",
            "city2" : "Lillestrøm"
        },
        {
            "city1" : "Nydalen",
            "city2" : "Oslo"
        }
    ],
    "avgDistance" : 61.993161646493654,
    "dist" : 0.037121422386542036
}
}
{
    "_id" : 100,
    "value" : {
        "cities" : [
            {
                "city1" : "Salama",
                "city2" : "Escuintla"
            },
            {
                "city1" : "Salama",
                "city2" : "Boca Del Monte"
            },
            {
                "city1" : "Salama",
                "city2" : "Guatemala"
            },
            {
                "city1" : "Escuintla",
                "city2" : "Boca Del Monte"
            },
            {
                "city1" : "Escuintla",
                "city2" : "SAN MIGUEL PETAPA"
            },
            {
                "city1" : "Escuintla",
                "city2" : "Antigua"
            },
            {
                "city1" : "Boca Del Monte",
                "city2" : "Guatemala"
            },
            {
                "city1" : "Boca Del Monte",
                "city2" : "SAN MIGUEL PETAPA"
            },
            {
                "city1" : "Boca Del Monte",
                "city2" : "VILLA CANALES"
            },
            {
                "city1" : "SAN MIGUEL PETAPA",
                "city2" : "VILLA CANALES"
            }
        ],
        "avgDistance" : 1.1734354545454568,
        "dist" : 0.038013155617488865
    }
}
{
    "_id" : 112,
    "value" : {
        "cities" : [
            {
                "city1" : "Akureyri",

```

```

        },
        {
            "city1": "Akureyri",
            "city2": "Saudarkrokur"
        },
        {
            "city1": "Selfoss",
            "city2": "Hafnarfjörður"
        },
        {
            "city1": "Selfoss",
            "city2": "Kopavogur"
        },
        {
            "city1": "Hafnarfjörður",
            "city2": "Kopavogur"
        }
    ],
    "avgDistance": 18.65095774230769,
    "dist": 0.04362407592144397
}
}

{
    "_id": 224,
    "value": {
        "cities": [
            {
                "city1": "Ballito",
                "city2": "Durban"
            },
            {
                "city1": "Durban",
                "city2": "Westville"
            },
            {
                "city1": "Alberton",
                "city2": "Bedfordview"
            },
            {
                "city1": "Alberton",
                "city2": "Germiston"
            },
            {
                "city1": "Bellville",
                "city2": "Kuils River"
            }
        ],
        "avgDistance": 157.41440857373453,
        "dist": 0.04738143096193118
    }
}

{
    "_id": 95,
    "value": {
        "cities": [
            {
                "city1": "Limnos",
                "city2": "Serres"
            },
            {
                "city1": "Limnos",
                "city2": "Tripolis"
            },
            {
                "city1": "Limnos",
                "city2": "Larisa"
            },
            {
                "city1": "Limnos",
                "city2": "Trikala"
            },
            {
                "city1": "Limnos",
                "city2": "Agria"
            },
            {
                "city1": "Limnos",
                "city2": "Thiva"
            },
            {
                "city1": "Limnos",
                "city2": "Amarinthos"
            }
        ],
    }
}

```



```

        {
            "city1": "Kalamaria",
            "city2": "Thessaloniki"
        },
        {
            "city1": "Athens",
            "city2": "Peristérion"
        }
    ],
    "avgDistance": 11.960400451428589,
    "dist": 0.04738143096193373
}
{
    "_id": 143,
    "value": {
        "cities": [
            {
                "city1": "Alytaus",
                "city2": "Daugai"
            },
            {
                "city1": "Alytaus",
                "city2": "Birstonas"
            },
            {
                "city1": "Lazdijai",
                "city2": "Simnas"
            },
            {
                "city1": "Ezerelis",
                "city2": "Kacergine"
            },
            {
                "city1": "Ezerelis",
                "city2": "Kulautuva"
            },
            {
                "city1": "Kacergine",
                "city2": "Kulautuva"
            },
            {
                "city1": "Pagegiai",
                "city2": "Panemune"
            }
        ],
        "avgDistance": 4.61971208222763,
        "dist": 0.04999999999999716
    }
}
{
    "_id": 174,
    "value": {
        "cities": [
            {
                "city1": "Banepa",
                "city2": "Kathmandu"
            },
            {
                "city1": "Banepa",
                "city2": "Lalitpur"
            },
            {
                "city1": "Kathmandu",
                "city2": "Lalitpur"
            }
        ],
        "avgDistance": 2.178265333333433,
        "dist": 0.05249761899362567
    }
}
{
    "_id": 236,
    "value": {
        "cities": [
            {
                "city1": "Chu-nan",
                "city2": "Hua-lien"
            },
            {
                "city1": "Chu-nan",
                "city2": "Hsin-chu"
            }
        ]
    }
}

```

```

        "city1" : "P'ing-tung",
        "city2" : "Kaohsiung"
    },
    {
        "city1" : "Tainan",
        "city2" : "Yung Kang City"
    }
],
"avgDistance" : 3655.6165026457734,
"dist" : 0.06580091184778554
}
}
{
    "_id" : 29,
    "value" : {
        "cities" : [
            {
                "city1" : "Sucre",
                "city2" : "Villazon"
            },
            {
                "city1" : "Sucre",
                "city2" : "Aiquile"
            },
            {
                "city1" : "Sucre",
                "city2" : "Potosi"
            },
            {
                "city1" : "Aiquile",
                "city2" : "Mizque"
            },
            {
                "city1" : "Cotoca",
                "city2" : "Portachuelo"
            },
            {
                "city1" : "Corioco",
                "city2" : "Yolosa"
            }
        ],
        "avgDistance" : 27.818091211948843,
        "dist" : 0.06599999999999895
    }
}
{
    "_id" : 256,
    "value" : {
        "cities" : [
            {
                "city1" : "Artigas",
                "city2" : "Carmelo"
            },
            {
                "city1" : "Artigas",
                "city2" : "Colonia"
            },
            {
                "city1" : "Artigas",
                "city2" : "Durazno"
            },
            {
                "city1" : "Artigas",
                "city2" : "Paso De Los Toros"
            },
            {
                "city1" : "Artigas",
                "city2" : "Maldonado"
            },
            {
                "city1" : "Artigas",
                "city2" : "Rivera"
            },
            {
                "city1" : "Artigas",
                "city2" : "Rocha"
            },
            {
                "city1" : "Carmelo",
                "city2" : "Colonia"
            },
            {
                "city1" : "Durazno",
                "city2" : "Paso De Los Toros"
            }
        ]
    }
}

```

```

        },
        {
            "city1": "Maldonado",
            "city2": "Punta del Este"
        }
    ],
    "avgDistance": 8.423121373626362,
    "dist": 0.06700000000000017
}
}
{
    "_id": 252,
    "value": {
        "cities": [
            {
                "city1": "Abu Dhabi",
                "city2": "Ajman"
            },
            {
                "city1": "Abu Dhabi",
                "city2": "Dubai"
            },
            {
                "city1": "Ajman",
                "city2": "Bur Dubai"
            },
            {
                "city1": "Ajman",
                "city2": "Dubai"
            },
            {
                "city1": "Ajman",
                "city2": "Sharjah "
            }
        ],
        "avgDistance": 1650.713598404074,
        "dist": 0.06811754546370562
    }
}
{
    "_id": 64,
    "value": {
        "cities": [
            {
                "city1": "Kladno",
                "city2": "Prague"
            },
            {
                "city1": "Kladno",
                "city2": "Brno"
            },
            {
                "city1": "Kladno",
                "city2": "Jihlava"
            },
            {
                "city1": "Kladno",
                "city2": "Hradec Kralove"
            },
            {
                "city1": "Kladno",
                "city2": "Chocen"
            },
            {
                "city1": "Kladno",
                "city2": "Pardubice"
            },
            {
                "city1": "Prague",
                "city2": "Kralupy Nad Vltavou"
            },
            {
                "city1": "Blansko",
                "city2": "Pribram"
            },
            {
                "city1": "Blansko",
                "city2": "Decin"
            },
            {
                "city1": "Blansko",
                "city2": "Usti nad Labem"
            }
        ],
    },

```

```

    "avgDistance" : 5.9047933090327,
    "dist" : 0.07468600939935206
  }
}
{
  "_id" : 187,
  "value" : {
    "cities" : [
      {
        "city1" : "Quetta",
        "city2" : "Abbottabad"
      },
      {
        "city1" : "Quetta",
        "city2" : "Attock"
      },
      {
        "city1" : "Quetta",
        "city2" : "Dera Ismail Khan"
      },
      {
        "city1" : "Quetta",
        "city2" : "Muzaffargarh"
      },
      {
        "city1" : "Quetta",
        "city2" : "Hyderabad"
      },
      {
        "city1" : "Quetta",
        "city2" : "Rahimyar Khan"
      },
      {
        "city1" : "Abbottabad",
        "city2" : "Attock"
      },
      {
        "city1" : "Abbottabad",
        "city2" : "Rawalpindi"
      },
      {
        "city1" : "Abbottabad",
        "city2" : "Islamabad"
      },
      {
        "city1" : "Attock",
        "city2" : "Mardan"
      },
      {
        "city1" : "Chiniot",
        "city2" : "Faisalabad"
      },
      {
        "city1" : "Khewra",
        "city2" : "Pind Dadan Khan"
      }
    ],
    "avgDistance" : 22.93568812744088,
    "dist" : 0.07468600939935206
  }
}
{
  "_id" : 17,
  "value" : {
    "cities" : [
      {
        "city1" : "Freetown",
        "city2" : "Old Bight"
      }
    ],
    "avgDistance" : 10.783859270588248,
    "dist" : 0.07468600939935845
  }
}
{
  "_id" : 271,
  "value" : {
    "cities" : [
      {
        "city1" : "Ada",
        "city2" : "Kisac"
      },
      {
        "city1" : "Ada",

```

```

        },
        {
            "city1": "Belgrade",
            "city2": "Zemun"
        },
        {
            "city1": "Kosovo Polje",
            "city2": "Pristina"
        }
    ],
    "avgDistance": 5.00549581066666,
    "dist": 0.07481310045707332
}
}
{
    "_id": 213,
    "value": {
        "cities": [
            {
                "city1": "Al Khobar",
                "city2": "Al Madinah"
            },
            {
                "city1": "Al Khobar",
                "city2": "Dammam"
            },
            {
                "city1": "Al Khobar",
                "city2": "Dhahran"
            }
        ],
        "avgDistance": 57.9684643777777,
        "dist": 0.07905694150420499
    }
}
{
    "_id": 27,
    "value": {
        "cities": [
            {
                "city1": "Hamilton",
                "city2": "Saint George"
            },
            {
                "city1": "Hamilton",
                "city2": "Somerset"
            }
        ],
        "avgDistance": 0.023069333333332897,
        "dist": 0.08409518416650377
    }
}
{
    "_id": 71,
    "value": {
        "cities": [
            {
                "city1": "Marsa Alam",
                "city2": "Al Mansurah"
            },
            {
                "city1": "Marsa Alam",
                "city2": "Hurghada"
            },
            {
                "city1": "Al Mansurah",
                "city2": "Giza"
            },
            {
                "city1": "Al Mansurah",
                "city2": "Cairo"
            },
            {
                "city1": "Al Mansurah",
                "city2": "Heliopolis"
            },
            {
                "city1": "Al Mansurah",
                "city2": "Ramadan 10 City"
            },
            {
                "city1": "Hurghada",
                "city2": "Sharm el-Sheikh"
            }
        ]
    }
}

```

```

        },
        {
            "city1": "Giza",
            "city2": "Cairo"
        }
    ],
    "avgDistance": 13.58623580727272,
    "dist": 0.08766413177577416
}
{
    "_id": 239,
    "value": {
        "cities": [
            {
                "city1": "Laem Chabang",
                "city2": "Chiang Mai"
            },
            {
                "city1": "Laem Chabang",
                "city2": "Koh Samui"
            },
            {
                "city1": "Laem Chabang",
                "city2": "Surat Thani"
            },
            {
                "city1": "Laem Chabang",
                "city2": "Phuket"
            },
            {
                "city1": "Chiang Mai",
                "city2": "Phitsanulok"
            },
            {
                "city1": "Phitsanulok",
                "city2": "Phetchabun"
            },
            {
                "city1": "Non Buri ",
                "city2": "Bangkok"
            }
        ],
        "avgDistance": 3335.189010497776,
        "dist": 0.0896939239859617
    }
}
{
    "_id": 157,
    "value": {
        "cities": [
            {
                "city1": "Quatre Bornes",
                "city2": "Port Louis"
            }
        ],
        "avgDistance": 0.00872090000000009,
        "dist": 0.0933857590856341
    }
}
{
    "_id": 88,
    "value": {
        "cities": [
            {
                "city1": "Banjul",
                "city2": "Kanifing"
            }
        ],
        "avgDistance": 0.009619999999999797,
        "dist": 0.0980815986819128
    }
}
{
    "_id": 36,
    "value": {
        "cities": [
            {
                "city1": "Kuala Belait",
                "city2": "Bandar Seri Begawan"
            },
            {
                "city1": "Kuala Belait",
                "city2": "Jerudong"
            }
        ]
    }
}

```

```

        },
        {
            "city1": "Kuala Belait",
            "city2": "Tutong"
        },
        {
            "city1": "Bandar Seri Begawan",
            "city2": "Jerudong"
        }
    ],
    "avgDistance": 0.27635199999999677,
    "dist": 0.10666770832825705
}
{
    "_id": 117,
    "value": {
        "cities": [
            {
                "city1": "Ennis",
                "city2": "Shannon"
            },
            {
                "city1": "Dublin",
                "city2": "Tallaght"
            }
        ],
        "avgDistance": 4.434574174236467,
        "dist": 0.1118033988749879
    }
}
{
    "_id": 9,
    "value": {
        "cities": [
            {
                "city1": "Saint Johns",
                "city2": "Falmouth"
            }
        ],
        "avgDistance": 0.014489000000000307,
        "dist": 0.12037026210821469
    }
}
{
    "_id": 203,
    "value": {
        "cities": [
            {
                "city1": "Syktyvkar",
                "city2": "Derbent"
            },
            {
                "city1": "Syktyvkar",
                "city2": "Makhachkala"
            },
            {
                "city1": "Syktyvkar",
                "city2": "Yoshkar-Ola"
            },
            {
                "city1": "Syktyvkar",
                "city2": "Kotlas"
            },
            {
                "city1": "Derbent",
                "city2": "Makhachkala"
            },
            {
                "city1": "Vladikavkaz",
                "city2": "Nal'chik"
            },
            {
                "city1": "Nal'chik",
                "city2": "Georgievsk"
            },
            {
                "city1": "Nal'chik",
                "city2": "Novopavlovsk"
            },
            {
                "city1": "Krasnogorsk",
                "city2": "Serpukhov"
            },

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```

        {
            "city1": "Konakovo",
            "city2": "Troitsk"
        },
        {
            "city1": "Lermontov",
            "city2": "Pyatigorsk"
        }
    ],
    "avgDistance": 3601.8499134800427,
    "dist": 0.12044085685513818
}
}
{
    "_id": 197,
    "value": {
        "cities": [
            {
                "city1": "Boleslawiec",
                "city2": "Glogow"
            },
            {
                "city1": "Boleslawiec",
                "city2": "Jelenia Gora"
            },
            {
                "city1": "Lodz",
                "city2": "Poznan"
            },
            {
                "city1": "Krakow",
                "city2": "Slomniki"
            },
            {
                "city1": "Lomianki",
                "city2": "Warsaw"
            },
            {
                "city1": "Gliwice",
                "city2": "Zabrze"
            }
        ],
        "avgDistance": 14.111017354093581,
        "dist": 0.12088010589009197
    }
}
{
    "_id": 108,
    "value": {
        "cities": [
            {
                "city1": "TELA",
                "city2": "Choluteca"
            },
            {
                "city1": "TELA",
                "city2": "Comayagua"
            },
            {
                "city1": "TELA",
                "city2": "Choloma"
            },
            {
                "city1": "TELA",
                "city2": "Progreso"
            },
            {
                "city1": "SANTA RITA",
                "city2": "La Ceiba"
            },
            {
                "city1": "Choloma",
                "city2": "La Lima"
            },
            {
                "city1": "Choloma",
                "city2": "SAN PEDRO SULA"
            },
            {
                "city1": "La Lima",
                "city2": "SAN PEDRO SULA"
            },
            {
                "city1": "Progreso",

```



```

        "city2" : "La Lima"
      }
    ],
    "avgDistance" : 2.5958310220952403,
    "dist" : 0.12156479753613297
  }
}
{
  "_id" : 81,
  "value" : {
    "cities" : [
      {
        "city1" : "Mariehamn",
        "city2" : "Kemi"
      },
      {
        "city1" : "Mariehamn",
        "city2" : "Tornio"
      },
      {
        "city1" : "Mariehamn",
        "city2" : "Närpiö"
      },
      {
        "city1" : "Mariehamn",
        "city2" : "Naantali"
      },
      {
        "city1" : "Mariehamn",
        "city2" : "Rauma"
      },
      {
        "city1" : "Mariehamn",
        "city2" : "Uusikaupunki"
      },
      {
        "city1" : "Kemi",
        "city2" : "Rovaniemi"
      },
      {
        "city1" : "Kemi",
        "city2" : "Tornio"
      },
      {
        "city1" : "Espoo",
        "city2" : "Helsinki"
      },
      {
        "city1" : "Espoo",
        "city2" : "Tapiola"
      },
      {
        "city1" : "Helsinki",
        "city2" : "Tapiola"
      },
      {
        "city1" : "Tapiola",
        "city2" : "Vantaa"
      }
    ],
    "avgDistance" : 16.140272254093098,
    "dist" : 0.1314193669137066
  }
}
{
  "_id" : 261,
  "value" : {
    "cities" : [
      {
        "city1" : "Charlotte Amalie",
        "city2" : "Cruz Bay"
      }
    ],
    "avgDistance" : 0.2582859466666666,
    "dist" : 0.13144930581786962
  }
}
{
  "_id" : 111,
  "value" : {
    "cities" : [
      {
        "city1" : "Hillye",
        "city2" : "Kecskemet"
      }
    ]
  }
}

```

```

        },
        {
            "city1": "Hillye",
            "city2": "Szekszard"
        },
        {
            "city1": "Kecskemet",
            "city2": "Nagykoros"
        }
    ],
    "avgDistance": 203.85309762276947,
    "dist": 0.133000000000000267
}
}
{
    "_id": 140,
    "value": {
        "cities": [
            {
                "city1": "Turnersville",
                "city2": "Gbarnga"
            },
            {
                "city1": "Gbarnga",
                "city2": "Clay-Ashland"
            },
            {
                "city1": "Clay-Ashland",
                "city2": "Monrovia"
            }
        ],
        "avgDistance": 75.94724933333332,
        "dist": 0.13763720427268214
    }
}
{
    "_id": 220,
    "value": {
        "cities": [
            {
                "city1": "Banska Bystrica",
                "city2": "Bratislava"
            },
            {
                "city1": "Banska Bystrica",
                "city2": "Kosice"
            },
            {
                "city1": "Banska Bystrica",
                "city2": "Nitra"
            },
            {
                "city1": "Banska Bystrica",
                "city2": "Trencin"
            },
            {
                "city1": "Banska Bystrica",
                "city2": "Liptovsky Mikulas"
            },
            {
                "city1": "Bratislava",
                "city2": "Trnava"
            },
            {
                "city1": "Kosice",
                "city2": "Presov"
            },
            {
                "city1": "Nove Mesto nad Vahom",
                "city2": "Trencin"
            },
            {
                "city1": "Piestany",
                "city2": "Nove Mesto nad Vahom"
            }
        ],
        "avgDistance": 4.765601186813189,
        "dist": 0.149999999999999858
    }
}
{
    "_id": 61,
    "value": {
        "cities": [

```

```

        {
            "city1" : "Slavonski Brod",
            "city2" : "Dubrovnik"
        },
        {
            "city1" : "Slavonski Brod",
            "city2" : "Orebic"
        },
        {
            "city1" : "Slavonski Brod",
            "city2" : "Djurdjevac"
        },
        {
            "city1" : "Slavonski Brod",
            "city2" : "Osijek"
        },
        {
            "city1" : "Slavonski Brod",
            "city2" : "Đakovo"
        },
        {
            "city1" : "Slavonski Brod",
            "city2" : "Nasice"
        },
        {
            "city1" : "Djurdjevac",
            "city2" : "Koprivnica"
        },
        {
            "city1" : "Nasice",
            "city2" : "Karlovac"
        },
        {
            "city1" : "Split",
            "city2" : "Supetar"
        },
        {
            "city1" : "Supetar",
            "city2" : "Omiš"
        }
    ],
    "avgDistance" : 6.034061174342867,
    "dist" : 0.15088074761214718
}
{
    "_id" : 153,
    "value" : {
        "cities" : [
            {
                "city1" : "Castletown",
                "city2" : "Douglas"
            },
            {
                "city1" : "Castletown",
                "city2" : "Peel"
            }
        ],
        "avgDistance" : 0.06736516666666698,
        "dist" : 0.15743252522906526
    }
}
{
    "_id" : 245,
    "value" : {
        "cities" : [
            {
                "city1" : "Monastir",
                "city2" : "Msaken"
            },
            {
                "city1" : "Carthage",
                "city2" : "Tunis"
            }
        ],
        "avgDistance" : 4.162314533333332,
        "dist" : 0.1584329511181317
    }
}
{
    "_id" : 251,
    "value" : {
        "cities" : [
            {

```

```

        "city1" : "Cherkassy",
        "city2" : "Chernivtsi"
      },
      {
        "city1" : "Cherkassy",
        "city2" : "Kaniv"
      },
      {
        "city1" : "Char'kov",
        "city2" : "Merefa"
      },
      {
        "city1" : "Donetsk",
        "city2" : "Makeevka"
      }
    ],
    "avgDistance" : 240.53249833358964,
    "dist" : 0.1702292571798415
  }
}
{
  "_id" : 274,
  "value" : {
    "cities" : [
      {
        "city1" : "Mutare",
        "city2" : "Gweru"
      },
      {
        "city1" : "Mutare",
        "city2" : "Kwekwe"
      },
      {
        "city1" : "Mutare",
        "city2" : "Harare"
      },
      {
        "city1" : "Mutare",
        "city2" : "Marondera"
      },
      {
        "city1" : "Gweru",
        "city2" : "Kwekwe"
      },
      {
        "city1" : "Harare",
        "city2" : "chitungwiza"
      }
    ],
    "avgDistance" : 10.197054027777783,
    "dist" : 0.17432441022415823
  }
}
{
  "_id" : 90,
  "value" : {
    "cities" : [
      {
        "city1" : "Bat'umi",
        "city2" : "Tbilisi"
      },
      {
        "city1" : "Bat'umi",
        "city2" : "Mtskheta"
      },
      {
        "city1" : "Bat'umi",
        "city2" : "P'ot'I"
      },
      {
        "city1" : "Tbilisi",
        "city2" : "Mtskheta"
      }
    ],
    "avgDistance" : 6.972227238000016,
    "dist" : 0.17577613603672304
  }
}
{
  "_id" : 63,
  "value" : {
    "cities" : [
      {
        "city1" : "Famagusta",

```

```

        },
        {
            "city1": "Famagusta",
            "city2": "Larnaca"
        },
        {
            "city1": "Kyrenia",
            "city2": "Nicosia"
        }
    ],
    "avgDistance": 0.6850033333333326,
    "dist": 0.18200274723200943
}
}
{
    "_id": 70,
    "value": {
        "cities": [
            {
                "city1": "Puerto Ayora",
                "city2": "Puerto Baquerizo Moreno"
            },
            {
                "city1": "Guaranda",
                "city2": "Riobamba"
            },
            {
                "city1": "Otavalo",
                "city2": "Ibarra"
            }
        ],
        "avgDistance": 25.289832048076985,
        "dist": 0.19023406634984552
    }
}
{
    "_id": 201,
    "value": {
        "cities": [
            {
                "city1": "Saint Paul",
                "city2": "Saint-Denis"
            }
        ],
        "avgDistance": 0.041419450000000135,
        "dist": 0.20351768964883651
    }
}
{
    "_id": 75,
    "value": {
        "cities": [
            {
                "city1": "Maardu",
                "city2": "saue"
            },
            {
                "city1": "Maardu",
                "city2": "Tallinn"
            },
            {
                "city1": "saue",
                "city2": "Tallinn"
            }
        ],
        "avgDistance": 3.6390662666666627,
        "dist": 0.20885641000457617
    }
}
{
    "_id": 92,
    "value": {
        "cities": [
            {
                "city1": "Accra",
                "city2": "Tema"
            }
        ],
        "avgDistance": 12.356860924688895,
        "dist": 0.21092415698539613
    }
}
}
{

```

```

    "_id" : 126,
    "value" : {
      "cities" : [
        {
          "city1" : "Madaba",
          "city2" : "Aqaba"
        },
        {
          "city1" : "Madaba",
          "city2" : "Karak"
        },
        {
          "city1" : "Madaba",
          "city2" : "Amman"
        },
        {
          "city1" : "Amman",
          "city2" : "Az Zarqa"
        }
      ],
      "avgDistance" : 2.5868162666666666,
      "dist" : 0.21349004660639403
    }
  }
{
  "_id" : 137,
  "value" : {
    "cities" : [
      {
        "city1" : "Ligatne",
        "city2" : "Liepaja"
      },
      {
        "city1" : "Ligatne",
        "city2" : "RIGA"
      },
      {
        "city1" : "Ligatne",
        "city2" : "salaspils"
      },
      {
        "city1" : "Ligatne",
        "city2" : "Sigulda"
      }
    ],
    "avgDistance" : 5.241345142857146,
    "dist" : 0.21653868014744954
  }
}
{
  "_id" : 228,
  "value" : {
    "cities" : [
      {
        "city1" : "Colombo",
        "city2" : "Nuwara Eliya"
      },
      {
        "city1" : "Colombo",
        "city2" : "Gampaha"
      }
    ],
    "avgDistance" : 4.7937481999999999,
    "dist" : 0.21795412361320127
  }
}
{
  "_id" : 11,
  "value" : {
    "cities" : [
      {
        "city1" : "Vanadzor",
        "city2" : "Gyumri"
      },
      {
        "city1" : "Vanadzor",
        "city2" : "Spitak"
      }
    ],
    "avgDistance" : 0.3841237733333325,
    "dist" : 0.2200460179144342
  }
}
{

```

```

    "_id" : 200,
    "value" : {
      "cities" : [
        {
          "city1" : "Doha",
          "city2" : "Al Wakra"
        },
        {
          "city1" : "Doha",
          "city2" : "Al-Rayyan"
        },
        {
          "city1" : "Al Wakra",
          "city2" : "Al-Rayyan"
        }
      ],
      "avgDistance" : 0.1174186666666658,
      "dist" : 0.22161678636781992
    }
  }
{
  "_id" : 26,
  "value" : {
    "cities" : [
      {
        "city1" : "Natitingou",
        "city2" : "Cotonou"
      },
      {
        "city1" : "Natitingou",
        "city2" : "Porto-Novo"
      },
      {
        "city1" : "Cotonou",
        "city2" : "Porto-Novo"
      }
    ],
    "avgDistance" : 11.062348666666667,
    "dist" : 0.22703523955544888
  }
}
{
  "_id" : 72,
  "value" : {
    "cities" : [
      {
        "city1" : "Santa Ana",
        "city2" : "Arcatao"
      },
      {
        "city1" : "Santa Ana",
        "city2" : "Tenancingo"
      },
      {
        "city1" : "Santa Ana",
        "city2" : "San Antonio Los Ranchos"
      },
      {
        "city1" : "Arcatao",
        "city2" : "Tenancingo"
      },
      {
        "city1" : "Tenancingo",
        "city2" : "San Salvador"
      },
      {
        "city1" : "Tenancingo",
        "city2" : "San Antonio Los Ranchos"
      }
    ],
    "avgDistance" : 0.5896264999999977,
    "dist" : 0.23120553626589554
  }
}
{
  "_id" : 260,
  "value" : {
    "cities" : [
      {
        "city1" : "Hanoi",
        "city2" : "Ho Chi Minh City"
      },
      {
        "city1" : "Hanoi",

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```

        },
        {
            "city1" : "Hanoi",
            "city2" : "Hue"
        },
        {
            "city1" : "Ho Chi Minh City",
            "city2" : "Bien Hoa"
        }
    ],
    "avgDistance" : 49.597978000000001,
    "dist" : 0.2499999999999943
}
}
{
    "_id" : 202,
    "value" : {
        "cities" : [
            {
                "city1" : "Arad",
                "city2" : "Pitesti"
            },
            {
                "city1" : "Arad",
                "city2" : "Oradea"
            },
            {
                "city1" : "Arad",
                "city2" : "Salonta"
            },
            {
                "city1" : "Arad",
                "city2" : "Sinnicolaul Mare"
            },
            {
                "city1" : "Arad",
                "city2" : "Timisoara"
            },
            {
                "city1" : "Oradea",
                "city2" : "Salonta"
            },
            {
                "city1" : "Salonta",
                "city2" : "Craiova"
            },
            {
                "city1" : "Cluj-Napoca",
                "city2" : "Turda"
            }
        ],
        "avgDistance" : 207.15308738095203,
        "dist" : 0.2710885464198019
    }
}
{
    "_id" : 67,
    "value" : {
        "cities" : [
            {
                "city1" : "Marigot",
                "city2" : "Roseau"
            }
        ],
        "avgDistance" : 0.07758202000000013,
        "dist" : 0.2785354914548595
    }
}
{
    "_id" : 171,
    "value" : {
        "cities" : [
            {
                "city1" : "Windhoek",
                "city2" : "Swakopmund"
            },
            {
                "city1" : "Swakopmund",
                "city2" : "Walvis Bay"
            }
        ],
        "avgDistance" : 22.34386453142856,
        "dist" : 0.2822095143683131
    }
}

```



```

    }
  }
  {
    "_id" : 181,
    "value" : {
      "cities" : [
        {
          "city1" : "Owerri",
          "city2" : "Lagos"
        },
        {
          "city1" : "Owerri",
          "city2" : "Port Harcourt"
        },
        {
          "city1" : "Lagos",
          "city2" : "Ibadan"
        },
        {
          "city1" : "Ile-Ife",
          "city2" : "Oshogbo"
        }
      ],
      "avgDistance" : 41.470976301587335,
      "dist" : 0.3000000000000007
    }
  }
  {
    "_id" : 232,
    "value" : {
      "cities" : [
        {
          "city1" : "Mbabane",
          "city2" : "Manzini"
        }
      ],
      "avgDistance" : 0.09335960999999995,
      "dist" : 0.30554804859465223
    }
  }
  {
    "_id" : 25,
    "value" : {
      "cities" : [
        {
          "city1" : "Belize",
          "city2" : "Belmopan"
        },
        {
          "city1" : "Belmopan",
          "city2" : "San Ignacio"
        }
      ],
      "avgDistance" : 1.1772020714285638,
      "dist" : 0.31820119421523463
    }
  }
  {
    "_id" : 37,
    "value" : {
      "cities" : [
        {
          "city1" : "Burgas",
          "city2" : "Sliven"
        },
        {
          "city1" : "Burgas",
          "city2" : "Balchik"
        },
        {
          "city1" : "Burgas",
          "city2" : "Varna"
        },
        {
          "city1" : "Blagoevgrad",
          "city2" : "Sofia"
        },
        {
          "city1" : "Plovdiv",
          "city2" : "Smolyan"
        },
        {
          "city1" : "Balchik",
          "city2" : "Varna"
        }
      ]
    }
  }

```

```

        }
        ],
        "avgDistance" : 6.816840909090906,
        "dist" : 0.3201562118716442
    }
}
{
    "_id" : 246,
    "value" : {
        "cities" : [
            {
                "city1" : "Adana",
                "city2" : "Alanya"
            },
            {
                "city1" : "Adana",
                "city2" : "Gaziantep"
            },
            {
                "city1" : "Adana",
                "city2" : "Mersin"
            },
            {
                "city1" : "Izmir",
                "city2" : "Manisa"
            }
        ],
        "avgDistance" : 57.53106628126137,
        "dist" : 0.33701335285118994
    }
}
{
    "_id" : 30,
    "value" : {
        "cities" : [
            {
                "city1" : "Banja Luka",
                "city2" : "Bijeljina"
            },
            {
                "city1" : "Banja Luka",
                "city2" : "Brcko"
            },
            {
                "city1" : "Banja Luka",
                "city2" : "Gradiska"
            },
            {
                "city1" : "Brcko",
                "city2" : "Tuzla"
            }
        ],
        "avgDistance" : 1.9293418545454506,
        "dist" : 0.3647739025752786
    }
}
{
    "_id" : 129,
    "value" : {
        "cities" : [
            {
                "city1" : "Nyeri",
                "city2" : "Mombasa"
            },
            {
                "city1" : "Nyeri",
                "city2" : "Embu"
            },
            {
                "city1" : "Kakamega",
                "city2" : "Kisumu"
            }
        ],
        "avgDistance" : 8.058321865018193,
        "dist" : 0.383
    }
}
{
    "_id" : 238,
    "value" : {
        "cities" : [
            {
                "city1" : "Arusha",
                "city2" : "Dar Es Salaam"
            }
        ]
    }
}

```

```

        },
        {
            "city1": "Arusha",
            "city2": "Dodoma"
        },
        {
            "city1": "Arusha",
            "city2": "Bagamoyo"
        },
        {
            "city1": "Dar Es Salaam",
            "city2": "Zanzibar"
        },
        {
            "city1": "Kilimanjaro",
            "city2": "Morogoro"
        }
    ],
    "avgDistance": 15.35682006062445,
    "dist": 0.4031128874149288
}
}
{
    "_id": 41,
    "value": {
        "cities": [
            {
                "city1": "Battambang",
                "city2": "Kampong Cham"
            },
            {
                "city1": "Battambang",
                "city2": "Kampot"
            },
            {
                "city1": "Battambang",
                "city2": "Kandal"
            },
            {
                "city1": "Battambang",
                "city2": "Kampong Thom"
            },
            {
                "city1": "Battambang",
                "city2": "Pursat"
            },
            {
                "city1": "Battambang",
                "city2": "Siem Reap"
            },
            {
                "city1": "Kampong Cham",
                "city2": "Kampot"
            },
            {
                "city1": "Phnom Penh",
                "city2": "Prey Veng"
            }
        ],
        "avgDistance": 2.969462256410248,
        "dist": 0.40557243496075174
    }
}
{
    "_id": 115,
    "value": {
        "cities": [
            {
                "city1": "Orumiyeh",
                "city2": "Zahedan"
            },
            {
                "city1": "Orumiyeh",
                "city2": "Fasa"
            },
            {
                "city1": "Orumiyeh",
                "city2": "Shiraz"
            },
            {
                "city1": "Orumiyeh",
                "city2": "Kermanshah"
            }
        ]
    }
}

```

```

        "city1" : "Orumiyeh",
        "city2" : "Tabriz"
      },
      {
        "city1" : "Fasa",
        "city2" : "Jahrom"
      }
    ],
    "avgDistance" : 59.17461907602333,
    "dist" : 0.43353661898391155
  }
}
{
  "_id" : 146,
  "value" : {
    "cities" : [
      {
        "city1" : "Skopje",
        "city2" : "Ohrid"
      },
      {
        "city1" : "Skopje",
        "city2" : "Tetovo"
      },
      {
        "city1" : "Skopje",
        "city2" : "Veles"
      }
    ],
    "avgDistance" : 0.7481876666666697,
    "dist" : 0.4394963026010577
  }
}
{
  "_id" : 168,
  "value" : {
    "cities" : [
      {
        "city1" : "Casablanca",
        "city2" : "Fez"
      },
      {
        "city1" : "Casablanca",
        "city2" : "Marrakesh"
      },
      {
        "city1" : "Casablanca",
        "city2" : "Rabat"
      },
      {
        "city1" : "Fez",
        "city2" : "Meknes"
      },
      {
        "city1" : "Tangier",
        "city2" : "Tetouan"
      }
    ],
    "avgDistance" : 18.446726333333356,
    "dist" : 0.4861738372228591
  }
}
{
  "_id" : 42,
  "value" : {
    "cities" : [
      {
        "city1" : "Douala",
        "city2" : "Mankon Bamenda"
      },
      {
        "city1" : "Douala",
        "city2" : "Limbe"
      }
    ],
    "avgDistance" : 3.906305833333333,
    "dist" : 0.5010878166549252
  }
}
{
  "_id" : 97,
  "value" : {
    "cities" : [
      {

```

```

        "city1" : "St George's",
        "city2" : "Hillsborough"
    },
    ],
    "avgDistance" : 0.2617966100000013,
    "dist" : 0.5116606394867611
}
}
{
    "_id" : 176,
    "value" : {
        "cities" : [
            {
                "city1" : "Willemstad",
                "city2" : "Oranjestad"
            },
            {
                "city1" : "Oranjestad",
                "city2" : "Philipsburg"
            }
        ],
        "avgDistance" : 44.78006272666669,
        "dist" : 0.5522680508593641
    }
}
{
    "_id" : 80,
    "value" : {
        "cities" : [
            {
                "city1" : "Nailuva",
                "city2" : "Suva"
            }
        ],
        "avgDistance" : 0.37408900000000433,
        "dist" : 0.6116281550092378
    }
}
{
    "_id" : 116,
    "value" : {
        "cities" : [
            {
                "city1" : "Ar Rutbah",
                "city2" : "Fallujah"
            },
            {
                "city1" : "Fallujah",
                "city2" : "Arbil"
            },
            {
                "city1" : "Fallujah",
                "city2" : "As Sulaymaniyah"
            },
            {
                "city1" : "Fallujah",
                "city2" : "Baghdad"
            }
        ],
        "avgDistance" : 784.8837304939289,
        "dist" : 0.621718561730307
    }
}
{
    "_id" : 275,
    "value" : {
        "cities" : [
            {
                "city1" : "Hebron",
                "city2" : "Gaza City"
            }
        ],
        "avgDistance" : 0.38972900000000577,
        "dist" : 0.6242827884861201
    }
}
{
    "_id" : 38,
    "value" : {
        "cities" : [
            {
                "city1" : "Ouagadougou",
                "city2" : "Yako"
            },

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```

        {
            "city1" : "Yako",
            "city2" : "Ouahigouya"
        }
    ],
    "avgDistance" : 1.6641088391999996,
    "dist" : 0.6339999999999997
}
{
    "_id" : 250,
    "value" : {
        "cities" : [
            {
                "city1" : "Jinja",
                "city2" : "Kampala"
            }
        ],
        "avgDistance" : 0.4071530000000001,
        "dist" : 0.6380854174795096
    }
}
{
    "_id" : 62,
    "value" : {
        "cities" : [
            {
                "city1" : "Havana",
                "city2" : "Holguin"
            },
            {
                "city1" : "Havana",
                "city2" : "Las Tunas"
            },
            {
                "city1" : "Holguin",
                "city2" : "Las Tunas"
            }
        ],
        "avgDistance" : 25.5835546666667,
        "dist" : 0.6920758628936452
    }
}
{
    "_id" : 165,
    "value" : {
        "cities" : [
            {
                "city1" : "Ulaangom",
                "city2" : "Choibalsan"
            },
            {
                "city1" : "Ulaangom",
                "city2" : "Moron"
            },
            {
                "city1" : "Ulaangom",
                "city2" : "Hovd"
            },
            {
                "city1" : "Ulaangom",
                "city2" : "Olgii"
            },
            {
                "city1" : "Darhan",
                "city2" : "Suhbaatar"
            }
        ],
        "avgDistance" : 116.01376056410255,
        "dist" : 0.7967188964747841
    }
}
{
    "_id" : 163,
    "value" : {
        "cities" : [
            {
                "city1" : "Chisinau",
                "city2" : "Tiraspol"
            }
        ],
        "avgDistance" : 0.64345,
        "dist" : 0.802153351922187
    }
}

```

```

}
{
  "_id" : 23,
  "value" : {
    "cities" : [
      {
        "city1" : "Brest",
        "city2" : "Mahilyow"
      },
      {
        "city1" : "Brest",
        "city2" : "Minsk"
      },
      {
        "city1" : "Brest",
        "city2" : "Molodechno"
      },
      {
        "city1" : "Mahilyow",
        "city2" : "Minsk"
      },
      {
        "city1" : "Minsk",
        "city2" : "Molodechno"
      }
    ],
    "avgDistance" : 14.175303777777772,
    "dist" : 0.8294443923494809
  }
}
{
  "_id" : 3,
  "value" : {
    "cities" : [
      {
        "city1" : "Algiers",
        "city2" : "Skikda"
      },
      {
        "city1" : "Algiers",
        "city2" : "Oran"
      },
      {
        "city1" : "Algiers",
        "city2" : "Ouled Djellal"
      },
      {
        "city1" : "Skikda",
        "city2" : "Ouled Djellal"
      },
      {
        "city1" : "Skikda",
        "city2" : "Annaba"
      },
      {
        "city1" : "Oran",
        "city2" : "Mascara"
      }
    ],
    "avgDistance" : 26.309414133333327,
    "dist" : 0.8365004482963547
  }
}
{
  "_id" : 20,
  "value" : {
    "cities" : [
      {
        "city1" : "Comilla",
        "city2" : "Dhaka"
      }
    ],
    "avgDistance" : 3460.8420013999994,
    "dist" : 0.8367855161270389
  }
}
{
  "_id" : 191,
  "value" : {
    "cities" : [
      {
        "city1" : "Goroka",
        "city2" : "Madang"
      }
    ]
  }
}

```

```

    ],
    "avgDistance" : 13.994526266666636,
    "dist" : 0.9611685596189683
  }
}
{
  "_id" : 55,
  "value" : {
    "cities" : [
      {
        "city1" : "Likasi",
        "city2" : "Lubumbashi"
      }
    ],
    "avgDistance" : 102.90536754,
    "dist" : 1.0046651183354567
  }
}
{
  "_id" : 56,
  "value" : {
    "cities" : [
      {
        "city1" : "Pointe Noire",
        "city2" : "Kinsasa"
      }
    ],
    "avgDistance" : 24.802108000000004,
    "dist" : 1.0933078249056853
  }
}
{
  "_id" : 2,
  "value" : {
    "cities" : [
      {
        "city1" : "Korce",
        "city2" : "Tirane"
      }
    ],
    "avgDistance" : 1.4066382499999999,
    "dist" : 1.1860178118392657
  }
}
{
  "_id" : 235,
  "value" : {
    "cities" : [
      {
        "city1" : "Qamishly",
        "city2" : "Al Ladhiqiyah"
      },
      {
        "city1" : "Qamishly",
        "city2" : "Aleppo"
      },
      {
        "city1" : "Al Ladhiqiyah",
        "city2" : "Aleppo"
      },
      {
        "city1" : "Al Ladhiqiyah",
        "city2" : "Hims"
      }
    ],
    "avgDistance" : 13.186001599999994,
    "dist" : 1.2194310148589813
  }
}
{
  "_id" : 270,
  "value" : {
    "cities" : [
      {
        "city1" : "Mukalla",
        "city2" : "Ibb"
      },
      {
        "city1" : "Ibb",
        "city2" : "Sanaa"
      }
    ],
    "avgDistance" : 17.217731333333337,
    "dist" : 1.3882074772886075
  }
}

```



```

    }
  }
  {
    "_id" : 240,
    "value" : {
      "cities" : [
        {
          "city1" : "kara",
          "city2" : "Lome"
        },
        {
          "city1" : "kara",
          "city2" : "Atakpame"
        },
        {
          "city1" : "Lome",
          "city2" : "Atakpame"
        }
      ],
      "avgDistance" : 5.908977333333337,
      "dist" : 1.4038878160308972
    }
  }
  {
    "_id" : 6,
    "value" : {
      "cities" : [
        {
          "city1" : "Benguela",
          "city2" : "Sumbe"
        }
      ],
      "avgDistance" : 19.8561666,
      "dist" : 1.4439615645854298
    }
  }
}
{
  "_id" : 214,
  "value" : {
    "cities" : [
      {
        "city1" : "Saint-Louis",
        "city2" : "Linguere"
      },
      {
        "city1" : "Dakar",
        "city2" : "Kaolack"
      }
    ],
    "avgDistance" : 4.8695270000000015,
    "dist" : 1.4605632475178878
  }
}
{
  "_id" : 39,
  "value" : {
    "cities" : [
      {
        "city1" : "Taunggyi",
        "city2" : "Moulmein"
      },
      {
        "city1" : "Taunggyi",
        "city2" : "Yangon"
      },
      {
        "city1" : "Moulmein",
        "city2" : "Yangon"
      }
    ],
    "avgDistance" : 12.558485446666651,
    "dist" : 1.493065638208844
  }
}
{
  "_id" : 218,
  "value" : {
    "cities" : [
      {
        "city1" : "Bo",
        "city2" : "Freetown"
      }
    ],
    "avgDistance" : 2.4597770000000008,

```

```

        "dist" : 1.568367622721153
    }
}
{
    "_id" : 60,
    "value" : {
        "cities" : [
            {
                "city1" : "Abidjan",
                "city2" : "Yamoussoukro"
            }
        ],
        "avgDistance" : 3.8125,
        "dist" : 1.9525624189766635
    }
}
{
    "_id" : 128,
    "value" : {
        "cities" : [
            {
                "city1" : "Almaty",
                "city2" : "Aqtobe"
            },
            {
                "city1" : "Almaty",
                "city2" : "Astana"
            },
            {
                "city1" : "Almaty",
                "city2" : "Pavlodar"
            },
            {
                "city1" : "Almaty",
                "city2" : "Karaganda"
            },
            {
                "city1" : "Almaty",
                "city2" : "Zhambyl"
            },
            {
                "city1" : "Astana",
                "city2" : "Karaganda"
            }
        ],
        "avgDistance" : 196.91510766666684,
        "dist" : 2.1004687572063494
    }
}
{
    "_id" : 148,
    "value" : {
        "cities" : [
            {
                "city1" : "Lilongwe",
                "city2" : "Blantyre"
            }
        ],
        "avgDistance" : 4.721088999999993,
        "dist" : 2.1728067102252773
    }
}
{
    "_id" : 237,
    "value" : {
        "cities" : [
            {
                "city1" : "Dushanbe",
                "city2" : "Khujand"
            }
        ],
        "avgDistance" : 4.944881000000008,
        "dist" : 2.223708838854585
    }
}
{
    "_id" : 44,
    "value" : {
        "cities" : [
            {
                "city1" : "Praia",
                "city2" : "Mindelo"
            }
        ],
    }
}

```

```

        "avgDistance" : 6.064444999999999,
        "dist" : 2.462609388433334
    }
}
{
    "_id" : 257,
    "value" : {
        "cities" : [
            {
                "city1" : "Bukhara",
                "city2" : "Urgench"
            },
            {
                "city1" : "Bukhara",
                "city2" : "Samarkand"
            }
        ],
        "avgDistance" : 29.257173333333295,
        "dist" : 2.5338906843034796
    }
}
{
    "_id" : 273,
    "value" : {
        "cities" : [
            {
                "city1" : "Kitwe",
                "city2" : "Lusaka"
            }
        ],
        "avgDistance" : 6.766888999999998,
        "dist" : 2.601324470341983
    }
}
{
    "_id" : 151,
    "value" : {
        "cities" : [
            {
                "city1" : "Bamako",
                "city2" : "Tombouctou"
            },
            {
                "city1" : "Bamako",
                "city2" : "Gao"
            }
        ],
        "avgDistance" : 37.70798533333333,
        "dist" : 2.9154759474226504
    }
}
{
    "_id" : 1,
    "value" : {
        "cities" : [
            {
                "city1" : "Herat",
                "city2" : "Kabul"
            },
            {
                "city1" : "Herat",
                "city2" : "Mazar-e Sharif"
            },
            {
                "city1" : "Kabul",
                "city2" : "Mazar-e Sharif"
            }
        ],
        "avgDistance" : 29.171070666666683,
        "dist" : 3.0173461849777947
    }
}
{
    "_id" : 223,
    "value" : {
        "cities" : [
            {
                "city1" : "Muqdisho",
                "city2" : "Bereeda"
            },
            {
                "city1" : "Muqdisho",
                "city2" : "Borama"
            }
        ]
    }
}

```

```

    ],
    "avgDistance" : 1152.0048223333333,
    "dist" : 3.1381806831347365
  }
}
{
  "_id" : 147,
  "value" : {
    "cities" : [
      {
        "city1" : "Madagascar",
        "city2" : "Nosy-Be"
      },
      {
        "city1" : "Madagascar",
        "city2" : "Antananarivo"
      },
      {
        "city1" : "Nosy-Be",
        "city2" : "Antananarivo"
      },
      {
        "city1" : "Nosy-Be",
        "city2" : "Tulear"
      }
    ],
    "avgDistance" : 67.20088609833336,
    "dist" : 3.7968195018989292
  }
}
{
  "_id" : 135,
  "value" : {
    "cities" : [
      {
        "city1" : "Bishkek",
        "city2" : "Karakol"
      }
    ],
    "avgDistance" : 14.613638890000086,
    "dist" : 3.8227789486184114
  }
}
{
  "_id" : 76,
  "value" : {
    "cities" : [
      {
        "city1" : "Axum",
        "city2" : "Addis Ababa"
      }
    ],
    "avgDistance" : 26.010288999999997,
    "dist" : 5.10002833325463
  }
}
{
  "_id" : 229,
  "value" : {
    "cities" : [
      {
        "city1" : "Khartoum",
        "city2" : "Port Sudan"
      }
    ],
    "avgDistance" : 38.21260085,
    "dist" : 6.181634156919997
  }
}
{
  "_id" : 96,
  "value" : {
    "cities" : [
      {
        "city1" : "Kangerlussuaq",
        "city2" : "Nuuk"
      },
      {
        "city1" : "Nuuk",
        "city2" : "Upernavik"
      }
    ],
    "avgDistance" : 5113.071169926667,
    "dist" : 9.679723544089475
  }
}

```

```

    }
  {
    "_id" : 169,
    "value" : {
      "cities" : [
        {
          "city1" : "Maputo",
          "city2" : "Nampula"
        }
      ],
      "avgDistance" : 162.21085700000003,
      "dist" : 12.736202613024027
    }
  }
  {
    "_id" : 74,
    "value" : {
      "cities" : [
        {
          "city1" : "Taiping",
          "city2" : "Asmara"
        }
      ],
      "avgDistance" : 1750.879378,
      "dist" : 41.84351058407982
    }
  }
  {
    "_id" : 217,
    "value" : {
      "cities" : [
        {
          "city1" : "Victoria",
          "city2" : "Anse aux Pins"
        }
      ],
      "avgDistance" : 6196.491716398401,
      "dist" : 78.71779796461789
    }
  }
  {
    "_id" : 57,
    "value" : {
      "cities" : [
        {
          "city1" : "Avarua",
          "city2" : "Rarotonga"
        }
      ],
      "avgDistance" : 25974.934288999997,
      "dist" : 161.16741075353912
    }
  }
  {
    "_id" : 154,
    "value" : {
      "cities" : [
        {
          "city1" : "Kwajalein",
          "city2" : "Majuro"
        }
      ],
      "avgDistance" : 29422.542689,
      "dist" : 171.53000521483116
    }
  }
  {
    "_id" : 8,
    "value" : {
      "cities" : [
        {
          "city1" : "Molodesjnaja",
          "city2" : "McMurdo Station"
        }
      ],
      "avgDistance" : 33842.1906,
      "dist" : 183.962470629202
    }
  }
}

```

6.

***** Iteration 0*****

CountryID - Seconds. 2.738

CountryID+City - Seconds. 2.725

```

City+Latitude+Longitude - Seconds. 2.527
CountryID+City+Latitude+Longitude - Seconds. 2.612
NONE - Seconds. 2.55
***** Iteration 1*****
CountryID - Seconds. 2.847
CountryID+City - Seconds. 2.604
City+Latitude+Longitude - Seconds. 2.422
CountryID+City+Latitude+Longitude - Seconds. 2.433
NONE - Seconds. 2.731
***** Iteration 2*****
CountryID - Seconds. 2.572
CountryID+City - Seconds. 2.495
City+Latitude+Longitude - Seconds. 2.793
CountryID+City+Latitude+Longitude - Seconds. 2.551
NONE - Seconds. 2.575
***** Iteration 3*****
CountryID - Seconds. 2.511
CountryID+City - Seconds. 2.439
City+Latitude+Longitude - Seconds. 2.548
CountryID+City+Latitude+Longitude - Seconds. 2.538
NONE - Seconds. 2.63
***** Iteration 4*****
CountryID - Seconds. 2.665
CountryID+City - Seconds. 2.695
City+Latitude+Longitude - Seconds. 2.493
CountryID+City+Latitude+Longitude - Seconds. 2.561
NONE - Seconds. 2.631
***** Iteration 5*****
CountryID - Seconds. 2.624
CountryID+City - Seconds. 2.708
City+Latitude+Longitude - Seconds. 2.593
CountryID+City+Latitude+Longitude - Seconds. 2.57
NONE - Seconds. 2.629
***** Iteration 6*****
CountryID - Seconds. 2.417
CountryID+City - Seconds. 2.477
City+Latitude+Longitude - Seconds. 2.611
CountryID+City+Latitude+Longitude - Seconds. 2.681
NONE - Seconds. 2.739
***** Iteration 7*****
CountryID - Seconds. 2.718
CountryID+City - Seconds. 2.505
City+Latitude+Longitude - Seconds. 2.66
CountryID+City+Latitude+Longitude - Seconds. 2.548
NONE - Seconds. 2.609
***** Iteration 8*****
CountryID - Seconds. 2.603
CountryID+City - Seconds. 2.472
City+Latitude+Longitude - Seconds. 2.527
CountryID+City+Latitude+Longitude - Seconds. 2.476
NONE - Seconds. 2.878
***** Iteration 9*****
CountryID - Seconds. 2.447
CountryID+City - Seconds. 2.408
City+Latitude+Longitude - Seconds. 2.497
CountryID+City+Latitude+Longitude - Seconds. 2.559
NONE - Seconds. 2.597

```

Bibliografía consultada

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Medina Rodríguez, J. M. (2017b). Tutorial MongoDB. Universidad de Granada.

Ravulavaru, A. (2014, abril 23). MapReduce in MongoDB. Recuperado 4 de mayo de 2017, a partir de <http://thejackalofjavascript.com/mapreduce-in-mongodb/>

Anexos

Disponibles en <https://github.com/mmaguero>

Adjuntos

- README.P3 – Shell con instrucciones para trabajar con MongoDB en Docker sobre un equipo remoto
- Src
 - 1.js – Script bloque Consulta de Documentos
 - 2.js – Script bloque Agregación
 - 3.js – Script bloque MapReduce
 - 3.outfile – Salida del bloque de MapReduce, para mejor visualización.