



MongoDB Physical Model

Schema for:

Model name: Modelo UTNPHONE
Author: Patricio Diaz - Mariano Zanier
Version: 1
File name: utnphonemongodb.json
File path: C:\Users\Mariano\Desktop\utnphonemongodb.json
Printed On: Tue Jun 30 2020 11:39:10 GMT-0300 (hora estándar de Argentina)
Created with: [Hackolade](#) - Visual data modeling for NoSQL and multimodel databases

1. Model

2. Databases

2.1 UTNPhone

2.1.2. Collections

- 2.1.2.1 calls
- 2.1.2.2 cities
- 2.1.2.3 countries
- 2.1.2.4 customers
- 2.1.2.5 invoices
- 2.1.2.6 linesTypes
- 2.1.2.7 lines_users
- 2.1.2.8 provinces
- 2.1.2.9 rates

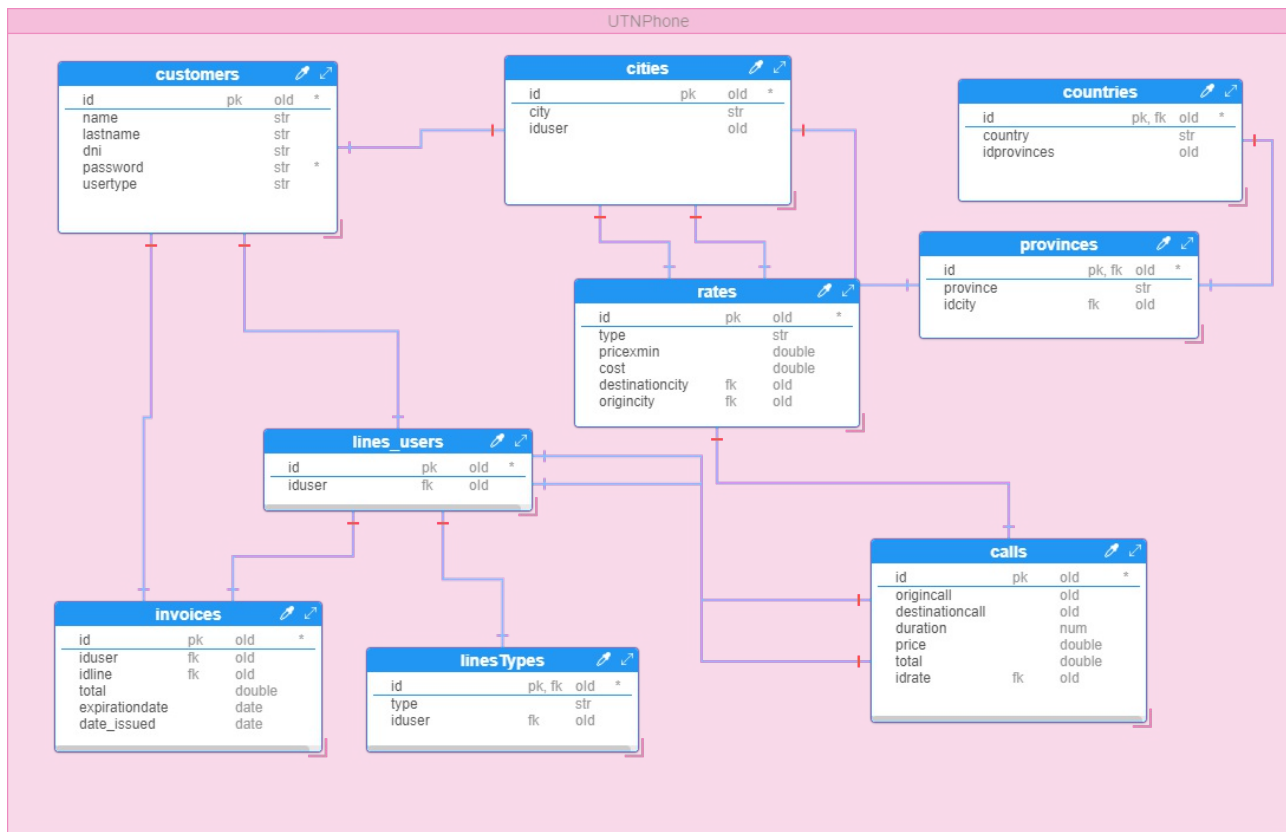
3. Relationships

- 3.1 fk calls.destinationcall to lines_users.id
- 3.2 fk calls.origincall to lines_users.id
- 3.3 fk cities.id to provinces.idcity
- 3.4 fk cities.id to rates.destinationcity
- 3.5 fk cities.id to rates.origincity
- 3.6 fk cities.iduser to customers.id
- 3.7 fk countries.idprovinces to provinces.id
- 3.8 fk customers.id to invoices.iduser
- 3.9 fk customers.id to lines_users.iduser
- 3.10 fk lines_users.id to invoices.idline
- 3.11 fk lines_users.id to linesTypes.iduser
- 3.12 fk rates.id to calls.idrate

1. MODEL

1.1 Model Modelo UTNPHONE

1.1.1 Modelo UTNPHONE Entity Relationship Diagram



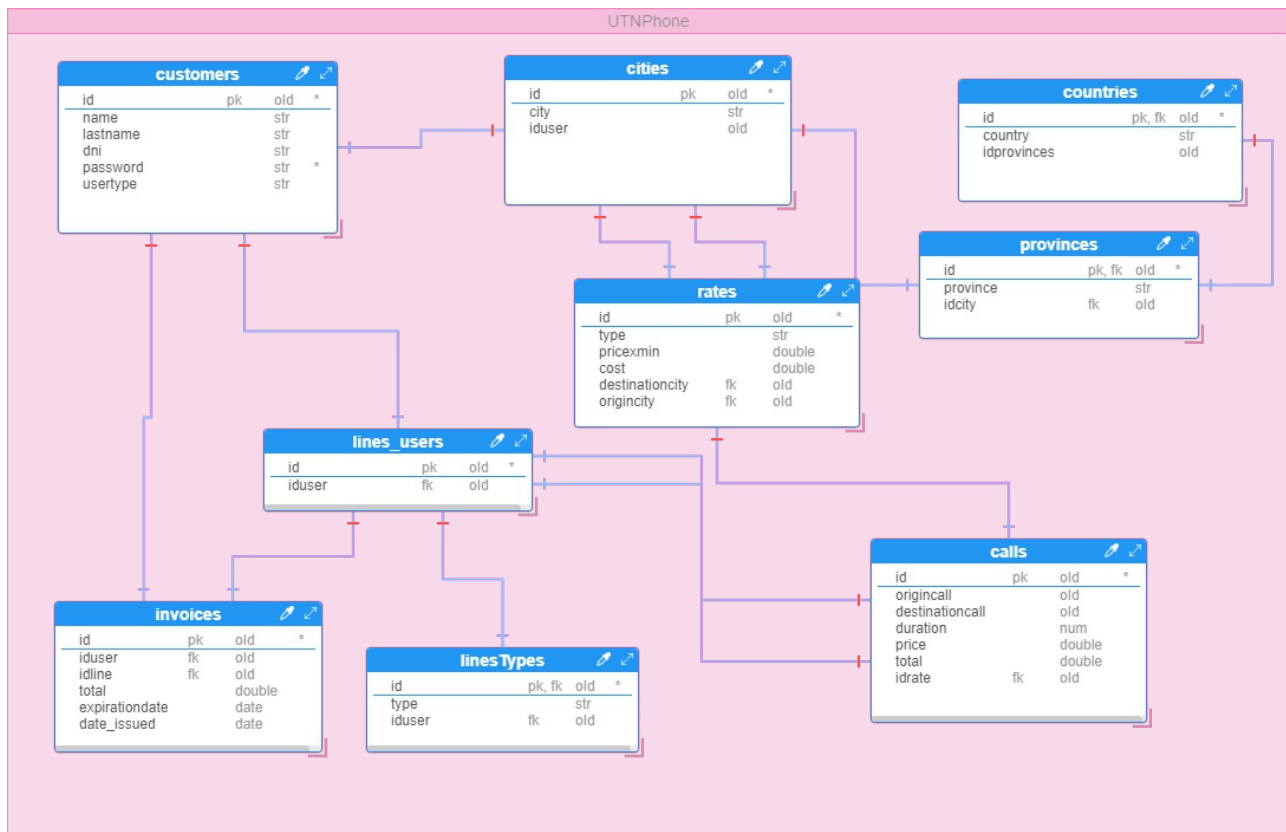
1.1.2 Modelo UTNPHONE Properties

PROPERTY	VALUE
Model name	Modelo UTNPHONE
Technical name	MongoDBUTN
Description	Modelo de BD en MongoDB UTNPHONE
Author	Patricio Diaz - Mariano Zanier
Version	1
DB vendor	MongoDB
DB version	v4.4
Comments	

1.1.3 Modelo UTNPHONE DB Definitions

2. DATABASES

2.1 Database UTNPhone



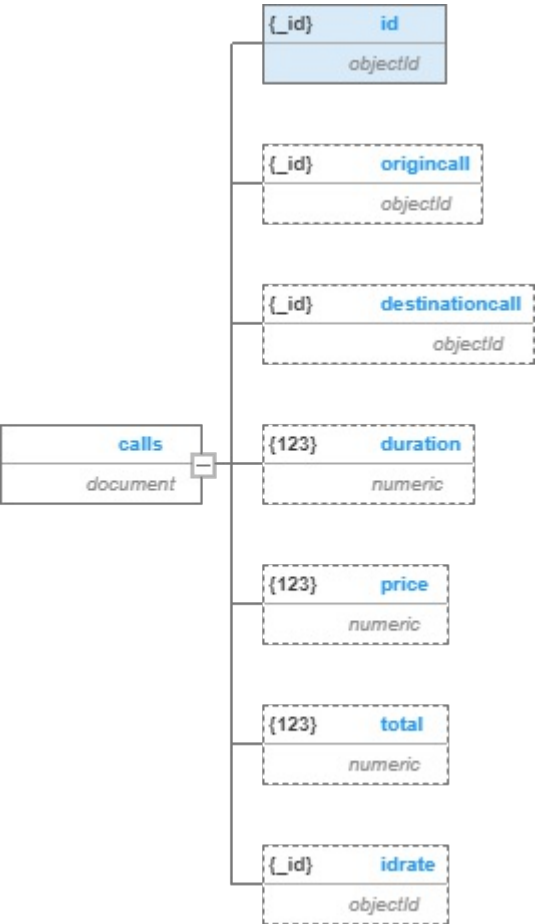
2.1.1 UTNPhone Properties

PROPERTY	VALUE
Database name	UTNPhone
Technical name	utn
Enable sharding	true
Description	Modelo de Base de datos proyecto final UTN PHONE Tecnicatura en Sistemas Informaticos año 2020. Profesor: Pablo Fino. Alumnos: Patricio Diaz - Mariano Zanier.
Comments	

2.1.2 UTNPhone Collections

2.1.2.1 Collection calls

2.1.2.1.1 calls Tree Diagram



2.1.2.1.2 calls Properties

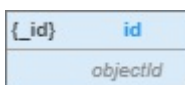
PROPERTY	VALUE
Collection name	calls
Technical name	
Id	
Description	
Database	UTNPhone
Capped	false
Size	
Max	
Storage engine	WiredTiger
Config String	
Validation level	Off
Validation action	Warn
Additional properties	false
Comments	

2.1.2.1.3 calls Fields

FIELD	TYPE	REQ	KEY	DESCRIPTION	COMMENTS
id	objectId	true			
origincall	objectId	false			
destinationcall	objectId	false			
duration	numeric	false		tiempo medido en minutos	
price	double	false			
total	double	false			
idrate	objectId	false			

2.1.2.1.3.1 Field id

2.1.2.1.3.1.1 id Tree Diagram



2.1.2.1.3.1.2 id properties

PROPERTY	VALUE
Name	id
Technical name	
Id	
Type	objectId
Description	
Dependencies	
Required	true
Primary key	true
Foreign collection	
Foreign field	
Relationship type	
Default	
Sample	
Comments	

2.1.2.1.3.2 Field origincall

2.1.2.1.3.2.1 origincall Tree Diagram



2.1.2.1.3.2.2 origincall properties

PROPERTY	VALUE
Name	origincall
Technical name	
Id	
Type	objectId
Description	
Dependencies	
Required	false
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Sample	
Comments	

2.1.2.1.3.3 Field destinationcall

2.1.2.1.3.3.1 destinationcall Tree Diagram



2.1.2.1.3.3.2 destinationcall properties

PROPERTY	VALUE
Name	destinationcall
Technical name	
Id	
Type	objectId
Description	
Dependencies	
Required	false
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Sample	
Comments	

2.1.2.1.3.4 Field duration

2.1.2.1.3.4.1 duration Tree Diagram



2.1.2.1.3.4.2 duration properties

PROPERTY	VALUE
Name	duration
Technical name	
Id	
Type	numeric
Subtype	
Description	tiempo medido en minutos
Dependencies	
Required	false
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Unit	
Min value	
Excl min	false
Max value	
Excl max	false
Multiple of	
Divisible by	
Enum	
Sample	
Comments	

2.1.2.1.3.5 Field price

2.1.2.1.3.5.1 price Tree Diagram



2.1.2.1.3.5.2 price properties

PROPERTY	VALUE
Name	price
Technical name	
Id	
Type	numeric
Subtype	double
Description	
Dependencies	
Required	false
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Unit	
Min value	
Excl min	false
Max value	
Excl max	false
Multiple of	
Divisible by	
Enum	
Sample	
Comments	

2.1.2.1.3.6 Field total

2.1.2.1.3.6.1 total Tree Diagram



2.1.2.1.3.6.2 total properties

PROPERTY	VALUE
Name	total
Technical name	
Id	
Type	numeric
Subtype	double
Description	
Dependencies	
Required	false
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Unit	
Min value	
Excl min	false
Max value	
Excl max	false
Multiple of	
Divisible by	
Enum	
Sample	
Comments	

2.1.2.1.3.7 Field idrate**2.1.2.1.3.7.1 idrate Tree Diagram**

2.1.2.1.3.7.2 idrate properties

PROPERTY	VALUE
Name	idrate
Technical name	
Id	
Type	objectId
Description	
Dependencies	
Required	false
Primary key	false
Foreign collection	rates
Foreign field	id
Relationship type	Foreign Key
Default	
Sample	
Comments	

2.1.2.1.4 calls JSON Schema

```
{
  "$schema": "http://json-schema.org/draft-04/schema#",
  "type": "object",
  "title": "calls",
  "additionalProperties": false,
  "properties": {
    "id": {
      "type": "string",
      "pattern": "^[a-zA-F0-9]{24}$"
    },
    "origincall": {
      "type": "string",
      "pattern": "^[a-zA-F0-9]{24}$"
    },
    "destinationcall": {
      "type": "string",
      "pattern": "^[a-zA-F0-9]{24}$"
    },
    "duration": {
      "type": "number",
      "description": "tiempo medido en minutos\n"
    },
    "price": {
      "type": "number"
    },
    "total": {
      "type": "number"
    },
    "idrate": {
      "type": "string",
      "pattern": "^[a-zA-F0-9]{24}$"
    }
  },
  "required": [
    "id"
  ]
}
```

2.1.2.1.5 calls JSON data

```
{
  "id": ObjectId("507f1f77bcf86cd799439011"),
  "origincall": ObjectId("507f1f77bcf86cd799439011"),
  "destinationcall": ObjectId("507f1f77bcf86cd799439011"),
  "duration": 29,
  "price": -4.071113070733366e+29,
  "total": -1.5911592639606896e+30,
  "idrate": ObjectId("507f1f77bcf86cd799439011")
}
```

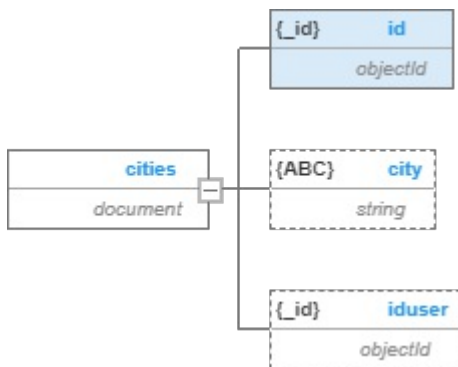
2.1.2.1.6 calls Target Script

```
use utn;

db.createCollection( "calls",{
  "storageEngine": {
    "wiredTiger": {}
  },
  "capped": false,
  "validator": {
    "$jsonSchema": {
      "bsonType": "object",
      "title": "calls",
      "additionalProperties": false,
      "properties": {
        "_id": {
          "bsonType": "objectId"
        },
        "id": {
          "bsonType": "objectId"
        },
        "origincall": {
          "bsonType": "objectId"
        },
        "destinationcall": {
          "bsonType": "objectId"
        },
        "duration": {
          "bsonType": "number",
          "description": "tiempo medido en minutos\n"
        },
        "price": {
          "bsonType": "double"
        },
        "total": {
          "bsonType": "double"
        },
        "idrate": {
          "bsonType": "objectId"
        }
      },
      "required": [
        "id"
      ]
    }
  },
  "validationLevel": "off",
  "validationAction": "warn"
});
```

2.1.2.2 Collection cities

2.1.2.2.1 cities Tree Diagram



2.1.2.2.2 cities Properties

PROPERTY	VALUE
Collection name	cities
Technical name	
Id	
Description	
Database	UTNPhone
Capped	false
Size	
Max	
Storage engine	WiredTiger
Config String	
Validation level	Off
Validation action	Warn
Additional properties	false
Comments	

2.1.2.2.3 cities Fields

FIELD	TYPE	REQ	KEY	DESCRIPTION	COMMENTS
id	objectId	true			
city	string	false			
iduser	objectId	false			

2.1.2.2.3.1 Field id

2.1.2.2.3.1.1 id Tree Diagram



2.1.2.2.3.1.2 id properties

PROPERTY	VALUE
Name	id
Technical name	
Id	
Type	objectId
Description	
Dependencies	
Required	true
Primary key	true
Foreign collection	
Foreign field	
Relationship type	
Default	
Sample	
Comments	

2.1.2.2.3.2 Field city**2.1.2.2.3.2.1 city Tree Diagram****2.1.2.2.3.2.2 city properties**

PROPERTY	VALUE
Name	city
Technical name	
Id	
Type	string
Description	
Dependencies	
Required	false
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Min length	
Max length	
Pattern	
Format	
Enum	
Sample	
Comments	

2.1.2.2.3.3 Field iduser

2.1.2.2.3.3.1 iduser Tree Diagram



2.1.2.2.3.3.2 iduser properties

PROPERTY	VALUE
Name	iduser
Technical name	
Id	
Type	objectId
Description	
Dependencies	
Required	false
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Sample	
Comments	

2.1.2.2.4 cities JSON Schema

```

{
  "$schema": "http://json-schema.org/draft-04/schema#",
  "type": "object",
  "title": "cities",
  "additionalProperties": false,
  "properties": {
    "id": {
      "type": "string",
      "pattern": "^a-fA-F0-9{24}$"
    },
    "city": {
      "type": "string"
    },
    "iduser": {
      "type": "string",
      "pattern": "^a-fA-F0-9{24}$"
    }
  },
  "required": [
    "id"
  ]
}
  
```

2.1.2.2.5 cities JSON data

```
{
  "id": ObjectId("507f1f77bcf86cd799439011"),
  "city": "Lorem",
  "iduser": ObjectId("507f1f77bcf86cd799439011")
}
```

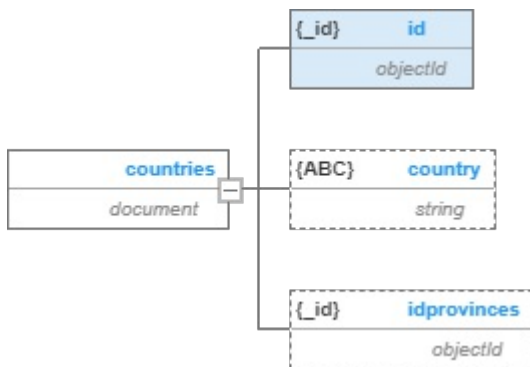
2.1.2.2.6 cities Target Script

```
use utn;

db.createCollection( "cities",{
  "storageEngine": {
    "wiredTiger": {}
  },
  "capped": false,
  "validator": {
    "$jsonSchema": {
      "bsonType": "object",
      "title": "cities",
      "additionalProperties": false,
      "properties": {
        "_id": {
          "bsonType": "objectId"
        },
        "id": {
          "bsonType": "objectId"
        },
        "city": {
          "bsonType": "string"
        },
        "iduser": {
          "bsonType": "objectId"
        }
      },
      "required": [
        "id"
      ]
    }
  },
  "validationLevel": "off",
  "validationAction": "warn"
});
```

2.1.2.3 Collection countries

2.1.2.3.1 countries Tree Diagram



2.1.2.3.2 countries Properties

PROPERTY	VALUE
Collection name	countries
Technical name	
Id	
Description	
Database	UTNPhone
Capped	false
Size	
Max	
Storage engine	WiredTiger
Config String	
Validation level	Off
Validation action	Warn
Additional properties	false
Comments	

2.1.2.3.3 countries Fields

FIELD	TYPE	REQ	KEY	DESCRIPTION	COMMENTS
id	objectId	true			
country	string	false			
idprovinces	objectId	false			

2.1.2.3.3.1 Field id

2.1.2.3.3.1.1 id Tree Diagram



2.1.2.3.3.1.2 id properties

PROPERTY	VALUE
Name	id
Technical name	
Id	
Type	objectId
Description	
Dependencies	
Required	true
Primary key	true
Foreign collection	provinces
Foreign field	
Relationship type	Foreign Key
Default	
Sample	
Comments	

2.1.2.3.3.2 Field country

2.1.2.3.3.2.1 country Tree Diagram



2.1.2.3.3.2.2 country properties

PROPERTY	VALUE
Name	country
Technical name	
Id	
Type	string
Description	
Dependencies	
Required	false
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Min length	
Max length	
Pattern	
Format	
Enum	
Sample	
Comments	

2.1.2.3.3.3 Field idprovinces

2.1.2.3.3.3.1 idprovinces Tree Diagram



2.1.2.3.3.3.2 idprovinces properties

PROPERTY	VALUE
Name	idprovinces
Technical name	
Id	
Type	objectId
Description	
Dependencies	
Required	false
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Sample	
Comments	

2.1.2.3.4 countries JSON Schema

```

{
  "$schema": "http://json-schema.org/draft-04/schema#",
  "type": "object",
  "title": "countries",
  "additionalProperties": false,
  "properties": {
    "id": {
      "type": "string",
      "pattern": "^[a-zA-F0-9]{24}$"
    },
    "country": {
      "type": "string"
    },
    "idprovinces": {
      "type": "string",
      "pattern": "^[a-zA-F0-9]{24}$"
    }
  },
  "required": [
    "id"
  ]
}
  
```

2.1.2.3.5 countries JSON data

```
{
  "id": ObjectId("507f1f77bcf86cd799439011"),
  "country": "Lorem",
  "idprovinces": ObjectId("507f1f77bcf86cd799439011")
}
```

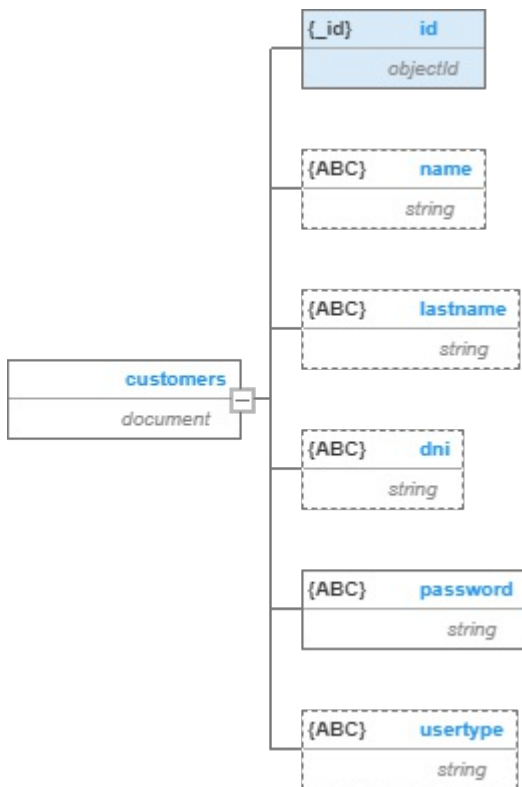
2.1.2.3.6 countries Target Script

```
use utn;

db.createCollection( "countries",{
  "storageEngine": {
    "wiredTiger": {}
  },
  "capped": false,
  "validator": {
    "$jsonSchema": {
      "bsonType": "object",
      "title": "countries",
      "additionalProperties": false,
      "properties": {
        "_id": {
          "bsonType": "objectId"
        },
        "id": {
          "bsonType": "objectId"
        },
        "country": {
          "bsonType": "string"
        },
        "idprovinces": {
          "bsonType": "objectId"
        }
      }
    },
    "required": [
      "id"
    ]
  }
},
  "validationLevel": "off",
  "validationAction": "warn"
});
```

2.1.2.4 Collection customers

2.1.2.4.1 customers Tree Diagram



2.1.2.4.2 customers Properties

PROPERTY	VALUE
Collection name	customers
Technical name	customers
Id	
Description	
Database	UTNPhone
Capped	false
Size	
Max	
Storage engine	WiredTiger
Config String	
Validation level	Off
Validation action	Warn
Additional properties	false
Comments	

2.1.2.4.3 customers Fields

FIELD	TYPE	REQ	KEY	DESCRIPTION	COMMENTS
id	objectId	true			
name	string	false			
lastname	string	false			
dni	string	false			
password	string	true			
usertype	string	false			

2.1.2.4.3.1 Field id

2.1.2.4.3.1.1 id Tree Diagram



2.1.2.4.3.1.2 id properties

PROPERTY	VALUE
Name	id
Technical name	
Id	
Type	objectId
Description	
Dependencies	
Required	true
Primary key	true
Foreign collection	
Foreign field	
Relationship type	
Default	
Sample	
Comments	

2.1.2.4.3.2 Field name

2.1.2.4.3.2.1 name Tree Diagram



2.1.2.4.3.2 name properties

PROPERTY	VALUE
Name	name
Technical name	
Id	
Type	string
Description	
Dependencies	
Required	false
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Min length	
Max length	
Pattern	
Format	
Enum	
Sample	
Comments	

2.1.2.4.3.3 Field lastname**2.1.2.4.3.3.1 lastname Tree Diagram**

2.1.2.4.3.3.2 lastname properties

PROPERTY	VALUE
Name	lastname
Technical name	
Id	
Type	string
Description	
Dependencies	
Required	false
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Min length	
Max length	
Pattern	
Format	
Enum	
Sample	
Comments	

2.1.2.4.3.4 Field dni

2.1.2.4.3.4.1 dni Tree Diagram



2.1.2.4.3.4.2 dni properties

PROPERTY	VALUE
Name	dni
Technical name	
Id	
Type	string
Description	
Dependencies	
Required	false
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Min length	
Max length	
Pattern	
Format	
Enum	
Sample	
Comments	

2.1.2.4.3.5 Field password

2.1.2.4.3.5.1 password Tree Diagram

{ABC}	password
	string

2.1.2.4.3.5.2 password properties

PROPERTY	VALUE
Name	password
Technical name	
Id	
Type	string
Description	
Dependencies	
Required	true
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Min length	
Max length	
Pattern	
Format	
Enum	
Sample	
Comments	

2.1.2.4.3.6 Field usertype

2.1.2.4.3.6.1 usertype Tree Diagram



2.1.2.4.3.6.2 usertype properties

PROPERTY	VALUE
Name	usertype
Technical name	
Id	
Type	string
Description	
Dependencies	
Required	false
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Min length	
Max length	
Pattern	
Format	
Enum	Empleado,Cliente
Sample	
Comments	

2.1.2.4.4 customers JSON Schema

```
{
  "$schema": "http://json-schema.org/draft-04/schema#",
  "type": "object",
  "title": "customers",
  "additionalProperties": false,
  "properties": {
    "id": {
      "type": "string",
      "pattern": "^[a-zA-F0-9]{24}$"
    },
    "name": {
      "type": "string"
    },
    "lastname": {
      "type": "string"
    },
    "dni": {
      "type": "string"
    },
    "password": {
      "type": "string"
    },
    "usertype": {
      "type": "string",
      "enum": [
        "Empleado",
        "Cliente"
      ]
    }
  },
  "required": [
    "id",
    "password"
  ]
}
```

2.1.2.4.5 customers JSON data

```
{
  "id": ObjectId("507f1f77bcf86cd799439011"),
  "name": "Lorem",
  "lastname": "Lorem",
  "dni": "Lorem",
  "password": "Lorem",
  "usertype": "Cliente"
}
```

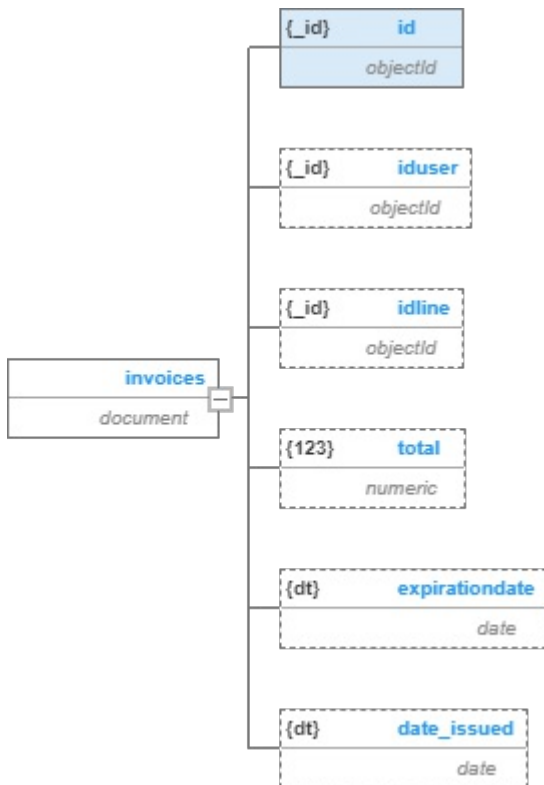
2.1.2.4.6 customers Target Script

```
use utn;

db.createCollection( "customers",{
  "storageEngine": {
    "wiredTiger": {}
  },
  "capped": false,
  "validator": {
    "$jsonSchema": {
      "bsonType": "object",
      "title": "customers",
      "additionalProperties": false,
      "properties": {
        "_id": {
          "bsonType": "objectId"
        },
        "id": {
          "bsonType": "objectId"
        },
        "name": {
          "bsonType": "string"
        },
        "lastname": {
          "bsonType": "string"
        },
        "dni": {
          "bsonType": "string"
        },
        "password": {
          "bsonType": "string"
        },
        "usertype": {
          "bsonType": "string",
          "enum": [
            "Empleado",
            "Cliente"
          ]
        }
      },
      "required": [
        "id",
        "password"
      ]
    }
  },
  "validationLevel": "off",
  "validationAction": "warn"
});
```

2.1.2.5 Collection invoices

2.1.2.5.1 invoices Tree Diagram



2.1.2.5.2 invoices Properties

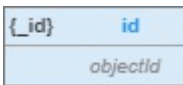
PROPERTY	VALUE
Collection name	invoices
Technical name	
Id	
Description	
Database	UTNPhone
Capped	false
Size	
Max	
Storage engine	WiredTiger
Config String	
Validation level	Off
Validation action	Warn
Additional properties	false
Comments	

2.1.2.5.3 invoices Fields

FIELD	TYPE	REQ	KEY	DESCRIPTION	COMMENTS
id	objectid	true			
iduser	objectid	false			
idline	objectid	false			
total	double	false			
expirationdate	date	false			
date_issued	date	false			

2.1.2.5.3.1 Field id

2.1.2.5.3.1.1 id Tree Diagram



2.1.2.5.3.1.2 id properties

PROPERTY	VALUE
Name	id
Technical name	
Id	
Type	objectId
Description	
Dependencies	iduser
Required	true
Primary key	true
Foreign collection	
Foreign field	
Relationship type	
Default	
Sample	
Comments	

2.1.2.5.3.2 Field iduser

2.1.2.5.3.2.1 iduser Tree Diagram



2.1.2.5.3.2 iduser properties

PROPERTY	VALUE
Name	iduser
Technical name	
Id	
Type	objectId
Description	
Dependencies	
Required	false
Primary key	false
Foreign collection	customers
Foreign field	id
Relationship type	Foreign Key
Default	
Sample	
Comments	

2.1.2.5.3.3 Field idline

2.1.2.5.3.3.1 idline Tree Diagram



2.1.2.5.3.3.2 idline properties

PROPERTY	VALUE
Name	idline
Technical name	
Id	
Type	objectId
Description	
Dependencies	
Required	false
Primary key	false
Foreign collection	lines_users
Foreign field	id
Relationship type	Foreign Key
Default	
Sample	
Comments	

2.1.2.5.3.4 Field total

2.1.2.5.3.4.1 total Tree Diagram



2.1.2.5.3.4.2 total properties

PROPERTY	VALUE
Name	total
Technical name	
Id	
Type	numeric
Subtype	double
Description	
Dependencies	
Required	false
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Unit	
Min value	
Excl min	false
Max value	
Excl max	false
Multiple of	
Divisible by	
Enum	
Sample	
Comments	

2.1.2.5.3.5 Field expirationdate

2.1.2.5.3.5.1 expirationdate Tree Diagram



2.1.2.5.3.5.2 expirationdate properties

PROPERTY	VALUE
Name	expirationdate
Technical name	
Id	
Type	date
Description	
Dependencies	
Required	false
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Sample	
Comments	

2.1.2.5.3.6 Field date_issued

2.1.2.5.3.6.1 date_issued Tree Diagram



2.1.2.5.3.6.2 date_issued properties

PROPERTY	VALUE
Name	date_issued
Technical name	
Id	
Type	date
Description	
Dependencies	
Required	false
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Sample	
Comments	

2.1.2.5.4 invoices JSON Schema

```
{
  "$schema": "http://json-schema.org/draft-04/schema#",
  "type": "object",
  "title": "invoices",
  "additionalProperties": false,
  "properties": {
    "id": {
      "type": "string",
      "pattern": "^a-fA-F0-9{24}$"
    },
    "iduser": {
      "type": "string",
      "pattern": "^a-fA-F0-9{24}$"
    },
    "idline": {
      "type": "string",
      "pattern": "^a-fA-F0-9{24}$"
    },
    "total": {
      "type": "number"
    },
    "expirationdate": {
      "type": "string",
      "format": "date-time"
    },
    "date_issued": {
      "type": "string",
      "format": "date-time"
    }
  },
  "required": [
    "id"
  ],
  "dependencies": {
    "id": [
      "iduser"
    ]
  }
}
```

2.1.2.5.5 invoices JSON data

```
{
  "id": ObjectId("507f1f77bcf86cd799439011"),
  "iduser": ObjectId("507f1f77bcf86cd799439011"),
  "idline": ObjectId("507f1f77bcf86cd799439011"),
  "total": -2.17264228903546e+29,
  "expirationdate": ISODate("2016-04-08T15:06:21.595Z"),
  "date_issued": ISODate("2016-04-08T15:06:21.595Z")
}
```

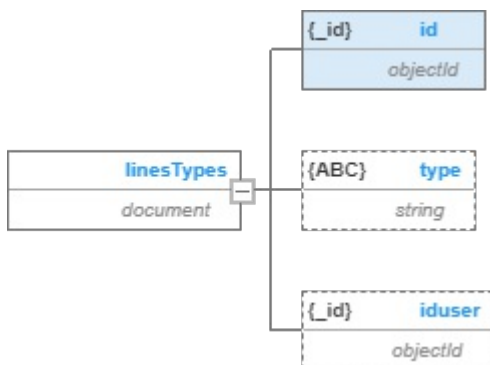
2.1.2.5.6 invoices Target Script

```
use utn;

db.createCollection( "invoices",{
  "storageEngine": {
    "wiredTiger": {}
  },
  "capped": false,
  "validator": {
    "$jsonSchema": {
      "bsonType": "object",
      "title": "invoices",
      "additionalProperties": false,
      "properties": {
        "_id": {
          "bsonType": "objectId"
        },
        "id": {
          "bsonType": "objectId"
        },
        "iduser": {
          "bsonType": "objectId"
        },
        "idline": {
          "bsonType": "objectId"
        },
        "total": {
          "bsonType": "double"
        },
        "expirationdate": {
          "bsonType": "date"
        },
        "date_issued": {
          "bsonType": "date"
        }
      }
    },
    "required": [
      "id"
    ],
    "dependencies": {
      "id": [
        "iduser"
      ]
    }
  },
  "validationLevel": "off",
  "validationAction": "warn"
});
```

2.1.2.6 Collection linesTypes

2.1.2.6.1 linesTypes Tree Diagram



2.1.2.6.2 linesTypes Properties

PROPERTY	VALUE
Collection name	linesTypes
Technical name	
Id	
Description	
Database	UTNPhone
Capped	false
Size	
Max	
Storage engine	WiredTiger
Config String	
Validation level	Off
Validation action	Warn
Additional properties	false
Comments	

2.1.2.6.3 linesTypes Fields

FIELD	TYPE	REQ	KEY	DESCRIPTION	COMMENTS
id	objectId	true			
type	string	false			
iduser	objectId	false			

2.1.2.6.3.1 Field id

2.1.2.6.3.1.1 id Tree Diagram



2.1.2.6.3.1.2 id properties

PROPERTY	VALUE
Name	id
Technical name	
Id	
Type	objectId
Description	
Dependencies	
Required	true
Primary key	true
Foreign collection	lines_users
Foreign field	
Relationship type	Foreign Key
Default	
Sample	
Comments	

2.1.2.6.3.2 Field type

2.1.2.6.3.2.1 type Tree Diagram



2.1.2.6.3.2.2 type properties

PROPERTY	VALUE
Name	type
Technical name	
Id	
Type	string
Description	
Dependencies	
Required	false
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Min length	
Max length	
Pattern	
Format	
Enum	Celular, Telefonía Fija
Sample	
Comments	

2.1.2.6.3.3 Field iduser

2.1.2.6.3.3.1 iduser Tree Diagram



2.1.2.6.3.3.2 iduser properties

PROPERTY	VALUE
Name	iduser
Technical name	
Id	
Type	objectId
Description	
Dependencies	
Required	false
Primary key	false
Foreign collection	lines_users
Foreign field	id
Relationship type	Foreign Key
Default	
Sample	
Comments	

2.1.2.6.4 linesTypes JSON Schema

```
{
  "$schema": "http://json-schema.org/draft-04/schema#",
  "type": "object",
  "title": "linesTypes",
  "additionalProperties": false,
  "properties": {
    "id": {
      "type": "string",
      "pattern": "^[a-zA-F0-9]{24}$"
    },
    "type": {
      "type": "string",
      "enum": [
        "Celular",
        "Telefonia Fija"
      ]
    },
    "iduser": {
      "type": "string",
      "pattern": "^[a-zA-F0-9]{24}$"
    }
  },
  "required": [
    "id"
  ]
}
```

2.1.2.6.5 linesTypes JSON data

```
{
  "id": ObjectId("507f1f77bcf86cd799439011"),
  "type": "Telefonia Fija",
  "iduser": ObjectId("507f1f77bcf86cd799439011")
}
```

2.1.2.6.6 linesTypes Target Script


```

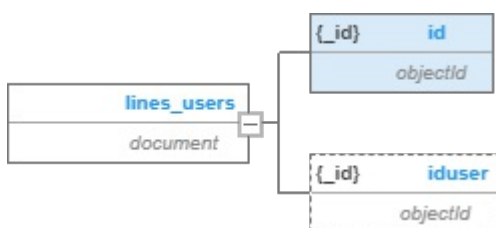
use utn;

db.createCollection( "linesTypes",{
  "storageEngine": {
    "wiredTiger": {}
  },
  "capped": false,
  "validator": {
    "$jsonSchema": {
      "bsonType": "object",
      "title": "linesTypes",
      "additionalProperties": false,
      "properties": {
        "_id": {
          "bsonType": "objectId"
        },
        "id": {
          "bsonType": "objectId"
        },
        "type": {
          "bsonType": "string",
          "enum": [
            "Celular",
            "Telefonia Fija"
          ]
        },
        "iduser": {
          "bsonType": "objectId"
        }
      },
      "required": [
        "id"
      ]
    }
  },
  "validationLevel": "off",
  "validationAction": "warn"
});

```

2.1.2.7 Collection lines_users

2.1.2.7.1 lines_users Tree Diagram



2.1.2.7.2 lines_users Properties

PROPERTY	VALUE
Collection name	lines_users
Technical name	
Id	
Description	
Database	UTNPhone
Capped	false
Size	
Max	
Storage engine	WiredTiger
Config String	
Validation level	Off
Validation action	Warn
Additional properties	false
Comments	

2.1.2.7.3 lines_users Fields

FIELD	TYPE	REQ	KEY	DESCRIPTION	COMMENTS
id	objectId	true			
iduser	objectId	false			

2.1.2.7.3.1 Field id

2.1.2.7.3.1.1 id Tree Diagram

{_id}	id
	objectId

2.1.2.7.3.1.2 id properties

PROPERTY	VALUE
Name	id
Technical name	
Id	
Type	objectId
Description	
Dependencies	
Required	true
Primary key	true
Foreign collection	
Foreign field	
Relationship type	
Default	
Sample	
Comments	

2.1.2.7.3.2 Field iduser

2.1.2.7.3.2.1 iduser Tree Diagram



2.1.2.7.3.2.2 iduser properties

PROPERTY	VALUE
Name	iduser
Technical name	
Id	
Type	objectId
Description	
Dependencies	
Required	false
Primary key	false
Foreign collection	customers
Foreign field	id
Relationship type	Foreign Key
Default	
Sample	
Comments	

2.1.2.7.4 lines_users JSON Schema

```

{
  "$schema": "http://json-schema.org/draft-04/schema#",
  "type": "object",
  "title": "lines_users",
  "additionalProperties": false,
  "properties": {
    "id": {
      "type": "string",
      "pattern": "^[a-fA-F0-9]{24}$"
    },
    "iduser": {
      "type": "string",
      "pattern": "^[a-fA-F0-9]{24}$"
    }
  },
  "required": [
    "id"
  ]
}

```

2.1.2.7.5 lines_users JSON data

```
{
  "id": ObjectId("507f1f77bcf86cd799439011"),
  "iduser": ObjectId("507f1f77bcf86cd799439011")
}
```

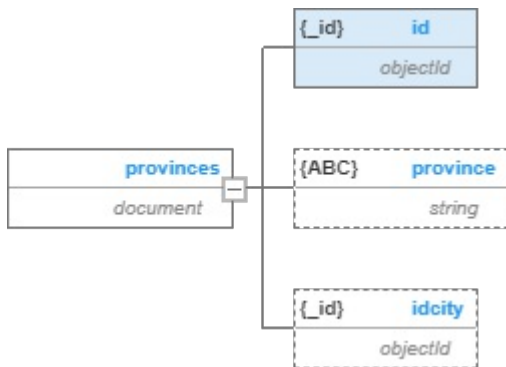
2.1.2.7.6 lines_users Target Script

```
use utn;

db.createCollection( "lines_users",{
  "storageEngine": {
    "wiredTiger": {}
  },
  "capped": false,
  "validator": {
    "$jsonSchema": {
      "bsonType": "object",
      "title": "lines_users",
      "additionalProperties": false,
      "properties": {
        "_id": {
          "bsonType": "objectId"
        },
        "id": {
          "bsonType": "objectId"
        },
        "iduser": {
          "bsonType": "objectId"
        }
      },
      "required": [
        "id"
      ]
    }
  },
  "validationLevel": "off",
  "validationAction": "warn"
});
```

2.1.2.8 Collection provinces

2.1.2.8.1 provinces Tree Diagram



2.1.2.8.2 provinces Properties

PROPERTY	VALUE
Collection name	provinces
Technical name	
Id	
Description	
Database	UTNPhone
Capped	false
Size	
Max	
Storage engine	WiredTiger
Config String	
Validation level	Off
Validation action	Warn
Additional properties	false
Comments	

2.1.2.8.3 provinces Fields

FIELD	TYPE	REQ	KEY	DESCRIPTION	COMMENTS
id	objectId	true			
province	string	false			
idcity	objectId	false			

2.1.2.8.3.1 Field id

2.1.2.8.3.1.1 id Tree Diagram



2.1.2.8.3.1.2 id properties

PROPERTY	VALUE
Name	id
Technical name	
Id	
Type	objectId
Description	
Dependencies	
Required	true
Primary key	true
Foreign collection	countries
Foreign field	idprovinces
Relationship type	Foreign Key
Default	
Sample	
Comments	

2.1.2.8.3.2 Field province

2.1.2.8.3.2.1 province Tree Diagram



2.1.2.8.3.2.2 province properties

PROPERTY	VALUE
Name	province
Technical name	
Id	
Type	string
Description	
Dependencies	
Required	false
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Min length	
Max length	
Pattern	
Format	
Enum	
Sample	
Comments	

2.1.2.8.3.3 Field idcity

2.1.2.8.3.3.1 idcity Tree Diagram



2.1.2.8.3.3.2 idcity properties

PROPERTY	VALUE
Name	idcity
Technical name	
Id	
Type	objectId
Description	
Dependencies	
Required	false
Primary key	false
Foreign collection	cities
Foreign field	id
Relationship type	Foreign Key
Default	
Sample	
Comments	

2.1.2.8.4 provinces JSON Schema

```

{
  "$schema": "http://json-schema.org/draft-04/schema#",
  "type": "object",
  "title": "provinces",
  "additionalProperties": false,
  "properties": {
    "id": {
      "type": "string",
      "pattern": "^[a-fA-F0-9]{24}$"
    },
    "province": {
      "type": "string"
    },
    "idcity": {
      "type": "string",
      "pattern": "^[a-fA-F0-9]{24}$"
    }
  },
  "required": [
    "id"
  ]
}
  
```

2.1.2.8.5 provinces JSON data

```
{
  "id": ObjectId("507f1f77bcf86cd799439011"),
  "province": "Lorem",
  "idcity": ObjectId("507f1f77bcf86cd799439011")
}
```

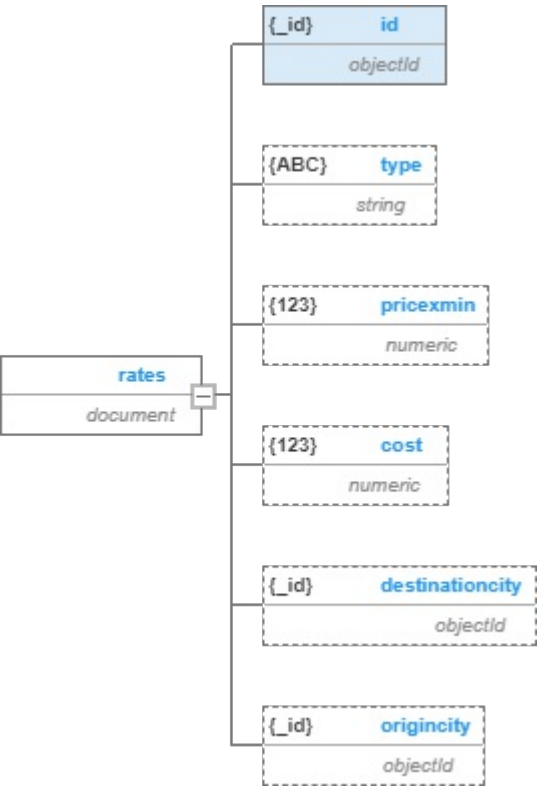
2.1.2.8.6 provinces Target Script

```
use utn;

db.createCollection( "provinces",{
  "storageEngine": {
    "wiredTiger": {}
  },
  "capped": false,
  "validator": {
    "$jsonSchema": {
      "bsonType": "object",
      "title": "provinces",
      "additionalProperties": false,
      "properties": {
        "_id": {
          "bsonType": "objectId"
        },
        "id": {
          "bsonType": "objectId"
        },
        "province": {
          "bsonType": "string"
        },
        "idcity": {
          "bsonType": "objectId"
        }
      }
    },
    "required": [
      "id"
    ]
  }
},
  "validationLevel": "off",
  "validationAction": "warn"
});
```

2.1.2.9 Collection rates

2.1.2.9.1 rates Tree Diagram



2.1.2.9.2 rates Properties

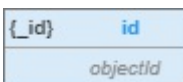
PROPERTY	VALUE
Collection name	rates
Technical name	
Id	
Description	
Database	UTNPhone
Capped	false
Size	
Max	
Storage engine	WiredTiger
Config String	
Validation level	Off
Validation action	Warn
Additional properties	false
Comments	

2.1.2.9.3 rates Fields

FIELD	TYPE	REQ	KEY	DESCRIPTION	COMMENTS
id	objectId	true			
type	string	false			
pricexmin	double	false			
cost	double	false			
destinationcity	objectId	false			
origincity	objectId	false			

2.1.2.9.3.1 Field id

2.1.2.9.3.1.1 id Tree Diagram



2.1.2.9.3.1.2 id properties

PROPERTY	VALUE
Name	id
Technical name	
Id	
Type	objectId
Description	
Dependencies	type
Required	true
Primary key	true
Foreign collection	
Foreign field	
Relationship type	
Default	
Sample	
Comments	

2.1.2.9.3.2 Field type

2.1.2.9.3.2.1 type Tree Diagram



2.1.2.9.3.2.2 type properties

PROPERTY	VALUE
Name	type
Technical name	
Id	
Type	string
Description	
Dependencies	
Required	false
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Min length	
Max length	
Pattern	
Format	
Enum	
Sample	
Comments	

2.1.2.9.3.3 Field pricexmin

2.1.2.9.3.3.1 pricexmin Tree Diagram



2.1.2.9.3.3.2 pricexmin properties

PROPERTY	VALUE
Name	pricexmin
Technical name	
Id	
Type	numeric
Subtype	double
Description	
Dependencies	
Required	false
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Unit	
Min value	
Excl min	false
Max value	
Excl max	false
Multiple of	
Divisible by	
Enum	
Sample	
Comments	

2.1.2.9.3.4 Field cost

2.1.2.9.3.4.1 cost Tree Diagram



2.1.2.9.3.4.2 cost properties

PROPERTY	VALUE
Name	cost
Technical name	
Id	
Type	numeric
Subtype	double
Description	
Dependencies	
Required	false
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Unit	
Min value	
Excl min	false
Max value	
Excl max	false
Multiple of	
Divisible by	
Enum	
Sample	
Comments	

2.1.2.9.3.5 Field destinationcity

2.1.2.9.3.5.1 destinationcity Tree Diagram



2.1.2.9.3.5.2 destinationcity properties

PROPERTY	VALUE
Name	destinationcity
Technical name	
Id	
Type	objectId
Description	
Dependencies	
Required	false
Primary key	false
Foreign collection	cities
Foreign field	id
Relationship type	Foreign Key
Default	
Sample	
Comments	

2.1.2.9.3.6 Field origincity

2.1.2.9.3.6.1 origincity Tree Diagram



2.1.2.9.3.6.2 origincity properties

PROPERTY	VALUE
Name	origincity
Technical name	
Id	
Type	objectId
Description	
Dependencies	
Required	false
Primary key	false
Foreign collection	cities
Foreign field	id
Relationship type	Foreign Key
Default	
Sample	
Comments	

2.1.2.9.4 rates JSON Schema

```
{
  "$schema": "http://json-schema.org/draft-04/schema#",
  "type": "object",
  "title": "rates",
  "additionalProperties": false,
  "properties": {
    "id": {
      "type": "string",
      "pattern": "^a-fA-F0-9{24}$"
    },
    "type": {
      "type": "string"
    },
    "pricexmin": {
      "type": "number"
    },
    "cost": {
      "type": "number"
    },
    "destinationcity": {
      "type": "string",
      "pattern": "^a-fA-F0-9{24}$"
    },
    "origincity": {
      "type": "string",
      "pattern": "^a-fA-F0-9{24}$"
    }
  },
  "required": [
    "id"
  ],
  "dependencies": {
    "id": [
      "type"
    ]
  }
}
```

2.1.2.9.5 rates JSON data

```
{
  "id": ObjectId("507f1f77bcf86cd799439011"),
  "type": "Lorem",
  "pricexmin": -1.3263529511311514e+30,
  "cost": 1.4767692785085373e+30,
  "destinationcity": ObjectId("507f1f77bcf86cd799439011"),
  "origincity": ObjectId("507f1f77bcf86cd799439011")
}
```

2.1.2.9.6 rates Target Script

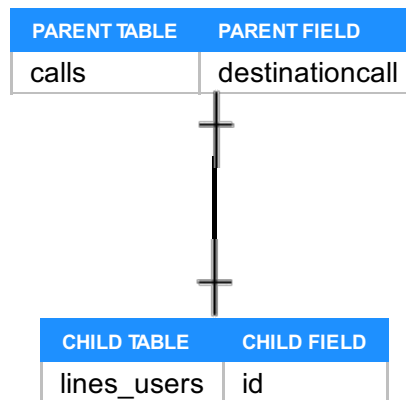
```
use utn;

db.createCollection("rates",{
  "storageEngine": {
    "wiredTiger": {}
  },
  "capped": false,
  "validator": {
    "$jsonSchema": {
      "bsonType": "object",
      "title": "rates",
      "additionalProperties": false,
      "properties": {
        "_id": {
          "bsonType": "objectId"
        },
        "id": {
          "bsonType": "objectId"
        },
        "type": {
          "bsonType": "string"
        },
        "pricexmin": {
          "bsonType": "double"
        },
        "cost": {
          "bsonType": "double"
        },
        "destinationcity": {
          "bsonType": "objectId"
        },
        "origincity": {
          "bsonType": "objectId"
        }
      }
    },
    "required": [
      "id"
    ],
    "dependencies": {
      "id": [
        "type"
      ]
    }
  },
  "validationLevel": "off",
  "validationAction": "warn"
});
```


3. RELATIONSHIPS

3.1 Relationship fk calls.destinationcall to lines_users.id

3.1.1 fk calls.destinationcall to lines_users.id Diagram

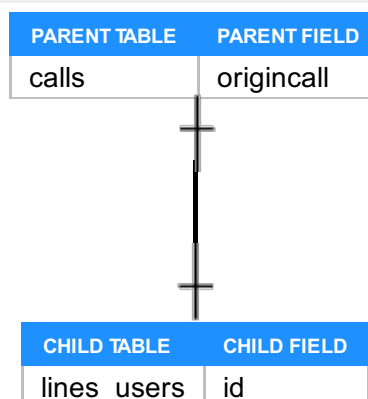


3.1.2 fk calls.destinationcall to lines_users.id Properties

PROPERTY	VALUE
Name	fk calls.destinationcall to lines_users.id
Description	
Parent Collection	calls
Parent field	destinationcall
Parent Cardinality	1
Child Collection	lines_users
Child field	id
Child Cardinality	1
Comments	

3.2 Relationship fk calls.origincall to lines_users.id

3.2.1 fk calls.origincall to lines_users.id Diagram

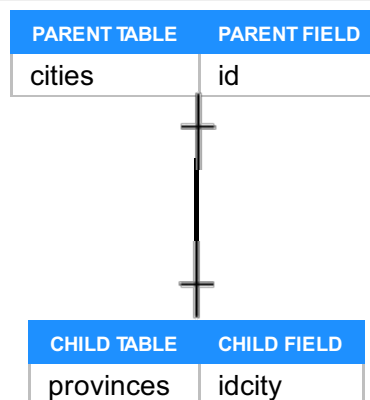


3.2.2 fk calls.origincall to lines_users.id Properties

PROPERTY	VALUE
Name	fk calls.origincall to lines_users.id
Description	
Parent Collection	calls
Parent field	origincall
Parent Cardinality	1
Child Collection	lines_users
Child field	id
Child Cardinality	1
Comments	

3.3 Relationship fk cities.id to provinces.idcity

3.3.1 fk cities.id to provinces.idcity Diagram

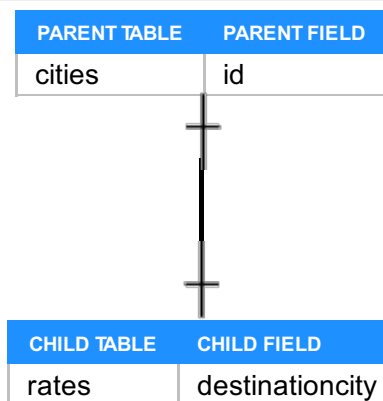


3.3.2 fk cities.id to provinces.idcity Properties

PROPERTY	VALUE
Name	fk cities.id to provinces.idcity
Description	
Parent Collection	cities
Parent field	id
Parent Cardinality	1
Child Collection	provinces
Child field	idcity
Child Cardinality	1
Comments	

3.4 Relationship fk cities.id to rates.destinationcity

3.4.1 fk cities.id to rates.destinationcity Diagram

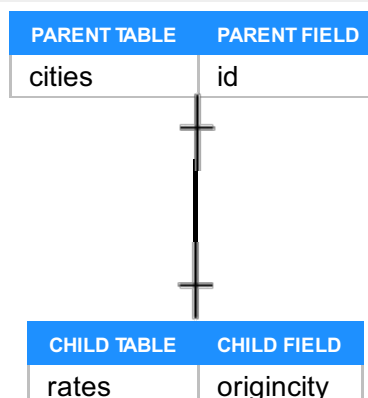


3.4.2 fk cities.id to rates.destinationcity Properties

PROPERTY	VALUE
Name	fk cities.id to rates.destinationcity
Description	
Parent Collection	cities
Parent field	id
Parent Cardinality	1
Child Collection	rates
Child field	destinationcity
Child Cardinality	1
Comments	

3.5 Relationship fk cities.id to rates.origincity

3.5.1 fk cities.id to rates.origincity Diagram

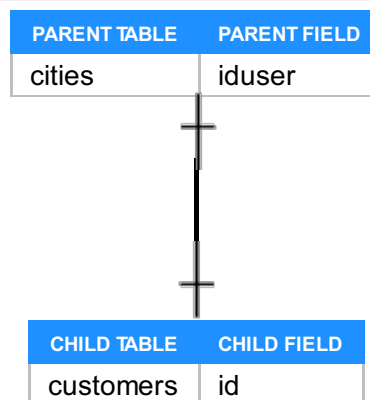


3.5.2 fk cities.id to rates.origincity Properties

PROPERTY	VALUE
Name	fk cities.id to rates.origincity
Description	
Parent Collection	cities
Parent field	id
Parent Cardinality	1
Child Collection	rates
Child field	origincity
Child Cardinality	1
Comments	

3.6 Relationship fk cities.iduser to customers.id

3.6.1 fk cities.iduser to customers.id Diagram

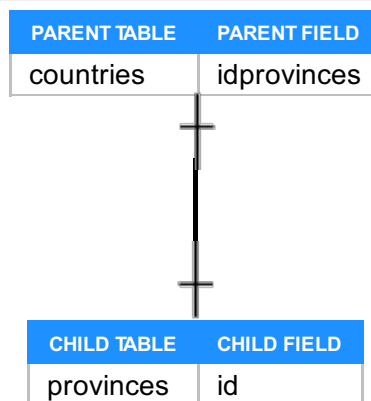


3.6.2 fk cities.iduser to customers.id Properties

PROPERTY	VALUE
Name	fk cities.iduser to customers.id
Description	
Parent Collection	cities
Parent field	iduser
Parent Cardinality	1
Child Collection	customers
Child field	id
Child Cardinality	1
Comments	

3.7 Relationship fk countries.idprovinces to provinces.id

3.7.1 fk countries.idprovinces to provinces.id Diagram

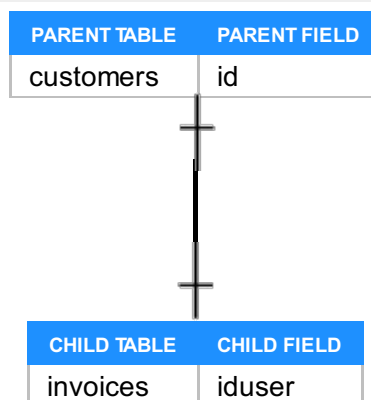


3.7.2 fk countries.idprovinces to provinces.id Properties

PROPERTY	VALUE
Name	fk countries.idprovinces to provinces.id
Description	
Parent Collection	countries
Parent field	idprovinces
Parent Cardinality	1
Child Collection	provinces
Child field	id
Child Cardinality	1
Comments	

3.8 Relationship fk customers.id to invoices.iduser

3.8.1 fk customers.id to invoices.iduser Diagram

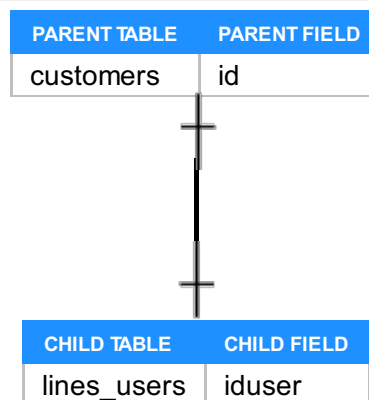


3.8.2 fk customers.id to invoices.iduser Properties

PROPERTY	VALUE
Name	fk customers.id to invoices.iduser
Description	
Parent Collection	customers
Parent field	id
Parent Cardinality	1
Child Collection	invoices
Child field	iduser
Child Cardinality	1
Comments	

3.9 Relationship fk customers.id to lines_users.iduser

3.9.1 fk customers.id to lines_users.iduser Diagram

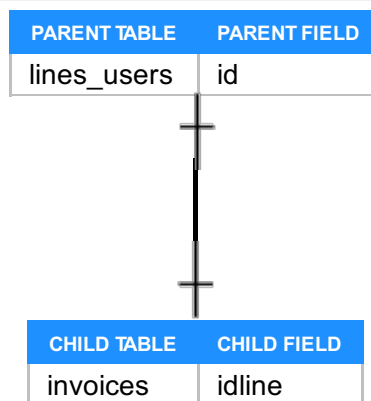


3.9.2 fk customers.id to lines_users.iduser Properties

PROPERTY	VALUE
Name	fk customers.id to lines_users.iduser
Description	
Parent Collection	customers
Parent field	id
Parent Cardinality	1
Child Collection	lines_users
Child field	iduser
Child Cardinality	1
Comments	

3.10 Relationship fk lines_users.id to invoices.idline

3.10.1 fk lines_users.id to invoices.idline Diagram

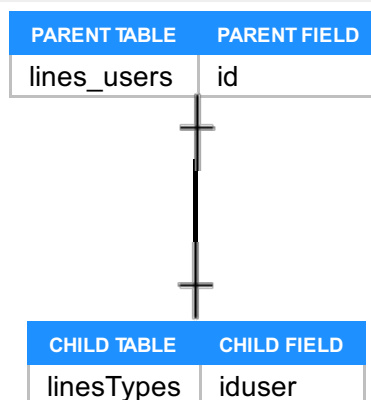


3.10.2 fk lines_users.id to invoices.idline Properties

PROPERTY	VALUE
Name	fk lines_users.id to invoices.idline
Description	
Parent Collection	lines_users
Parent field	id
Parent Cardinality	1
Child Collection	invoices
Child field	idline
Child Cardinality	1
Comments	

3.11 Relationship fk lines_users.id to linesTypes.iduser

3.11.1 fk lines_users.id to linesTypes.iduser Diagram

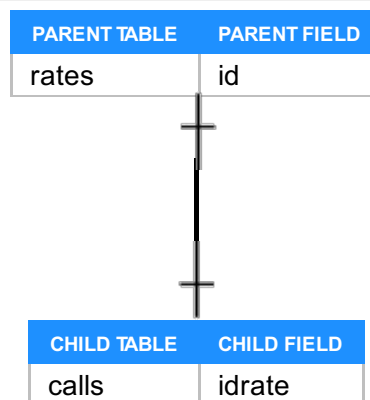


3.11.2 fk lines_users.id to linesTypes.iduser Properties

PROPERTY	VALUE
Name	fk lines_users.id to linesTypes.iduser
Description	
Parent Collection	lines_users
Parent field	id
Parent Cardinality	1
Child Collection	linesTypes
Child field	iduser
Child Cardinality	1
Comments	

3.12 Relationship fk rates.id to calls.idrate

3.12.1 fk rates.id to calls.idrate Diagram



3.12.2 fk rates.id to calls.idrate Properties

PROPERTY	VALUE
Name	fk rates.id to calls.idrate
Description	
Parent Collection	rates
Parent field	id
Parent Cardinality	1
Child Collection	calls
Child field	idrate
Child Cardinality	1
Comments	