Purchase Order Management System (SQLite)

Customer Table:

Create statement

CREATE TABLE "CUSTOMER" ("C_ID" INTEGER PRIMARY KEY AUTOINCREMENT NOT NULL UNIQUE , "EMAIL" VARCHAR NOT NULL UNIQUE , "PSWD" VARCHAR NOT NULL , "C_FNAME" VARCHAR NOT NULL , "C_LNAME" VARCHAR NOT NULL , "C_ADD" VARCHAR NOT NULL , "C_ZIP" INTEGER NOT NULL , "C_COUNTRY" VARCHAR NOT NULL , "C_PH" INTEGER NOT NULL)

More Info

No. of Records: 2   No. of Indexes: 2   No. of Triggers: 0

Columns (9)

Column ID	Name	Type	Not Null	Default Value	Primary Key
0	C_ID	INTEGER	1	null	1
1	EMAIL	VARCHAR	1	null	0
2	PSWD	VARCHAR	1	null	0
3	C_FNAME	VARCHAR	1	null	0
4	C_LNAME	VARCHAR	1	null	0
5	C_ADD	VARCHAR	1	null	0
6	C_ZIP	INTEGER	1	null	0
7	C_COUNTRY	VARCHAR	1	null	0
8	C_PH	INTEGER	1	null	0

TABLE CUSTOMER   [Search] [Show All]   [Add] [Duplicate] [Edit] [Delete]

C_ID	EMAIL	PSWD	C_FNAME	C_LNAME	C_ADD	C_ZIP	C_COUNTRY	C_PH
1	abc@gmail.com	123abc	AVNI	GULATI	ABC	95134	USA	12
2	xyz@gmail.com	123abc	VINI	C	XYZ	95134	USA	122345
3	pqr@gmail.com	789abc	Janal	Bhandari	PQR	94085	USA	987654321

Add New Record

Table Name: CUSTOMER

Enter Field Values

1. C_ID (INTEGER) : 4
2. EMAIL (VARCHAR) : rst@gmail.com
3. PSWD (VARCHAR) : 789abc
4. C_FNAME (VARCHAR) : Dixita
5. C_LNAME (VARCHAR) : Patodiya
6. C_ADD (VARCHAR) : RST
7. C_ZIP (INTEGER) : 95054
8. C_COUNTRY (VARCHAR) : USA
9. C_PH (INTEGER) : 8374565929

[OK] [Cancel]

TABLE CUSTOMER   [Search] [Show All]   [Add] [Duplicate] [Edit] [Delete]

C_ID	EMAIL	PSWD	C_FNAME	C_LNAME	C_ADD	C_ZIP	C_COUNTRY	C_PH
1	abc@gmail.com	123abc	AVNI	GULATI	ABC	95134	USA	12
2	xyz@gmail.com	123abc	VINI	C	XYZ	95134	USA	122345
3	pqr@gmail.com	789abc	Janal	Bhandari	PQR	94085	USA	987654321
4	rst@gmail.com	789abc	Dixita	Patodiya	RST	95054	USA	8374565929

Order Table:

TABLE: ORDER | Search | Show All | Add | Duplicate | Edit | Delete

O_ID	QUANTITY	O_DATE	P_ID	C_ID
1	1	12-03-2017	1000	1
2	1	12-03-2017	1001	2
3	2	03-02-2016	1002	3
4	2	11-8-2015	1003	4

Product Table:

TABLE: PRODUCT | Search | Show All | Add | Duplicate | Edit | Delete

rowid	P_ID	P_NAME	P_NUMB	P_PRICE	P_CATEGORY
1	1000	LAPTOP	11013	100	ELECTRONICS
2	1001	SPEAKERS	22323	200.3	ELECTRONICS
3	1002	Watch	73821	59.99	Accessories
4	1003	Jeans	92746	29.99	Clothes

Vendor Table:

TABLE: VENDOR | Search | Show All | Add | Duplicate | Edit | Delete

V_ID	EMAIL	PSWD	V_FNAME	V_LNAME	P_ID	V_PH
1	pqr@gmail.com	12876	JANAL	BHANDARI	1000	98453578
2	mno@gmail.com	8765rf	DIXITA	PATODIYA	1001	979575700
3	abc@gmail.com	wdc7s8d8	Avni	Gulati	1003	276482645
4	fdsd@gmail.com	wdwd43r	Vini	C	1004	243535243

Insert Query:

Enter SQL

INSERT INTO Product (P_ID, P_NAME, P_NUMB, P_PRICE, P_CATEGORY) VALUES (1005, 'Sandals', 23423, 15.99, 'Shoes')

TABLE: PRODUCT | Search | Show All | Add | Duplicate | Edit | Delete

rowid	P_ID	P_NAME	P_NUMB	P_PRICE	P_CATEGORY
1	1000	LAPTOP	11013	100	ELECTRONICS
2	1001	SPEAKERS	22323	200.3	ELECTRONICS
3	1002	Watch	73821	59.99	Accessories
4	1003	Jeans	92746	29.99	Clothes
5	1005	Sandals	23423	15.99	Shoes

Update Query:

Enter SQL

UPDATE CUSTOMER SET C_COUNTRY = 'INDIA' WHERE C_ID = 4

TABLE: CUSTOMER | Search | Show All | Add | Duplicate | Edit | Delete

C_ID	EMAIL	PSWD	C_FNAME	C_LNAME	C_ADD	C_ZIP	C_COUNTRY	C_PH
1	abc@gmail.com	123abc	AVNI	GULATI	ABC	95134	USA	12
2	xyz@gmail.com	123abc	VINI	C	XYZ	95134	USA	122345
3	pqr@gmail.com	789abc	Janal	Bhandari	PQR	94085	USA	987654321
4	rst@gmail.com	789abc	Dixita	Patodiya	RST	95054	INDIA	8374565929

Delete Query:

Enter SQL

DELETE FROM CUSTOMER WHERE C_ID = 2

| TABLE CUSTOMER | | Search | Show All | | | | Add | Duplicate | Edit | Delete |

C_ID	EMAIL	PSWD	C_FNAME	C_LNAME	C_ADD	C_ZIP	C_COUNTRY	C_PH
1	abc@gmail.com	123abc	AVNI	GULATI	ABC	95134	USA	12
3	pqr@gmail.com	789abc	Janal	Bhandari	PQR	94085	USA	987654321
4	rst@gmail.com	789abc	Dixita	Patodiya	RST	95054	INDIA	8374565929

DB2 Express C

Sample database:

```
Administrator: DB2 CLP - DB2COPY1

C:\Program Files\IBM\SQLLIB\BIN>dblevel
'dblevel' is not recognized as an internal or external command,
operable program or batch file.

C:\Program Files\IBM\SQLLIB\BIN>db2level
DB21085I  This instance or install (instance name, where applicable: "DB2")
uses "64" bits and DB2 code release "SQL11011" with level identifier
"0202010F".
Informational tokens are "DB2 v11.1.1010.160", "s1612051900",
"DYN1612051900WIN64", and Fix Pack "1".
Product is installed at "C:\PROGRA~1\IBM\SQLLIB" with DB2 Copy Name "DB2COPY1".

C:\Program Files\IBM\SQLLIB\BIN>db2 activate db1
SQL0104N  An unexpected token "db1" was found following "ACTIVATE".  Expected
tokens may include:  "DATABASE".  SQLSTATE=42601

C:\Program Files\IBM\SQLLIB\BIN>db2 create database PRODUCT
DB20000I  The CREATE DATABASE command completed successfully.

C:\Program Files\IBM\SQLLIB\BIN>db2 activate db PRODUCT
DB20000I  The ACTIVATE DATABASE command completed successfully.

C:\Program Files\IBM\SQLLIB\BIN>db2 connect to PRODUCT

   Database Connection Information

 Database server        = DB2/NT64 11.1.1.1
 SQL authorization ID   = AALOK
 Local database alias   = PRODUCT


C:\Program Files\IBM\SQLLIB\BIN>db2 get schema
SQL0104N  An unexpected token "schema" was found following "GET".  Expected
tokens may include:  "ADMIN".  SQLSTATE=42601

C:\Program Files\IBM\SQLLIB\BIN>db2 set schema=schema1
DB20000I  The SQL command completed successfully.

C:\Program Files\IBM\SQLLIB\BIN>db2 create table schema1.product(P_ID number, P_
NAME varchar(20), P_CAT varchar(20), P_PRICE number);
DB21034E  The command was processed as an SQL statement because it was not a
valid Command Line Processor command.  During SQL processing it returned:
SQL0104N  An unexpected token ";" was found following "20), P_PRICE number)".
Expected tokens may include:  "END-OF-STATEMENT".  SQLSTATE=42601

C:\Program Files\IBM\SQLLIB\BIN>db2 create table schema1.product(P_ID number, P_
NAME varchar(20), P_CAT varchar(20), P_PRICE number)
DB21034E  The command was processed as an SQL statement because it was not a
valid Command Line Processor command.  During SQL processing it returned:
SQL0204N  "number" is an undefined name.  SQLSTATE=42704

C:\Program Files\IBM\SQLLIB\BIN>db2 create table schema1.PRODUCT(P_ID number, P_
NAME varchar(20), P_CAT varchar(20), P_PRICE number);
DB21034E  The command was processed as an SQL statement because it was not a
valid Command Line Processor command.  During SQL processing it returned:
SQL0104N  An unexpected token ";" was found following "20), P_PRICE number)".
```

```
DB20000I   The SQL command completed successfully.

C:\Program Files\IBM\SQLLIB\BIN>db2 describe table schema1.PRODUCT

                                      Data type            Column
Column name                           schema    Data type name   Length     Scale N
ulls
--------------------------------      ----------   ---------------------   -----------   ------  -
-----
P_ID                                  SYSIBM    INTEGER                       4        0 Y
es
P_NAME                                SYSIBM    VARCHAR                      20        0 Y
es
P_CAT                                 SYSIBM    VARCHAR                      20        0 Y
es
P_PRICE                               SYSIBM    INTEGER                       4        0 Y
es

  4 record(s) selected.


C:\Program Files\IBM\SQLLIB\BIN>db2 insert into schema1.PRODUCT(P_ID, P_NAME, P_
CAT, P_PRICE) values ('1', 'LAPTOP', 'ELECTRONICS', '500')
DB20000I   The SQL command completed successfully.

C:\Program Files\IBM\SQLLIB\BIN>db2 insert into schema1.PRODUCT(P_ID, P_NAME, P_
CAT, P_PRICE) values ('2', 'SPEAKERS', 'ELECTRONICS', '200')
DB20000I   The SQL command completed successfully.

C:\Program Files\IBM\SQLLIB\BIN>db2 insert into schema1.PRODUCT(P_ID, P_NAME, P_
CAT, P_PRICE) values ('3', 'MOISTURIZER', 'COSMETICS', '100')
DB20000I   The SQL command completed successfully.

C:\Program Files\IBM\SQLLIB\BIN>db2 insert into schema1.PRODUCT(P_ID, P_NAME, P_
CAT, P_PRICE) values ('3', 'ASPIRIN', 'MEDICINE', '10')
DB20000I   The SQL command completed successfully.

C:\Program Files\IBM\SQLLIB\BIN>db2 update schema1.PRODUCT SET P_ID=4 where P_ID
=3
DB20000I   The SQL command completed successfully.

C:\Program Files\IBM\SQLLIB\BIN>db2 select * from schema1.PRODUCT
P_ID        P_NAME               P_CAT                P_PRICE
----------- -------------------- -------------------- -----------
          1 LAPTOP               ELECTRONICS                  500
```

Where clause:

```
CAT, P_PRICE) values ('3', 'ASPIRIN', 'MEDICINE', '10')
DB20000I  The SQL command completed successfully.

C:\Program Files\IBM\SQLLIB\BIN>db2 update schema1.PRODUCT SET P_ID=4 where P_ID
=3
DB20000I  The SQL command completed successfully.

C:\Program Files\IBM\SQLLIB\BIN>db2 select * from schema1.PRODUCT

P_ID        P_NAME              P_CAT                   P_PRICE
----------- ------------------- ----------------------- -----------
          1 LAPTOP              ELECTRONICS                     500
          2 SPEAKERS            ELECTRONICS                     200
          4 MOISTURIZER         COSMETICS                       100
          4 ASPIRIN             MEDICINE                         10

  4 record(s) selected.


C:\Program Files\IBM\SQLLIB\BIN>db2 update schema1.PRODUCT SET P_ID=3 where P_NA
ME=MOISTURIZER
DB21034E  The command was processed as an SQL statement because it was not a
valid Command Line Processor command.  During SQL processing it returned:
SQL0206N  "MOISTURIZER" is not valid in the context where it is used.
SQLSTATE=42703

C:\Program Files\IBM\SQLLIB\BIN>db2 update schema1.PRODUCT SET P_ID=3 where P_ID
=4
DB20000I  The SQL command completed successfully.

C:\Program Files\IBM\SQLLIB\BIN>db2 select * from schema1.PRODUCT

P_ID        P_NAME              P_CAT                   P_PRICE
----------- ------------------- ----------------------- -----------
          1 LAPTOP              ELECTRONICS                     500
          2 SPEAKERS            ELECTRONICS                     200
          3 MOISTURIZER         COSMETICS                       100
          3 ASPIRIN             MEDICINE                         10

  4 record(s) selected.


C:\Program Files\IBM\SQLLIB\BIN>db2 delete from schema1.PRODUCT where P_NAME='AS
PIRIN'
DB20000I  The SQL command completed successfully.

C:\Program Files\IBM\SQLLIB\BIN>db2 select * from schema1.PRODUCT

P_ID        P_NAME              P_CAT                   P_PRICE
----------- ------------------- ----------------------- -----------
          1 LAPTOP              ELECTRONICS                     500
          2 SPEAKERS            ELECTRONICS                     200
          3 MOISTURIZER         COSMETICS                       100

  3 record(s) selected.
```

Group by:

```
Administrator: DB2 CLP - DB2COPY1                                          [-][□][X]

C:\Program Files\IBM\SQLLIB\MISC>db2 SELECT PRODUCTD.P_NAME, COUNT(ORDER.O_ID AS
 TOTALORDERS FROM ORDER GROUP BY O_ADDRESS )
SQL0104N  An unexpected token "AS" was found following "ME, COUNT(ORDER.O_ID".
Expected tokens may include:   ")".   SQLSTATE=42601

C:\Program Files\IBM\SQLLIB\MISC>db2 SELECT P_NAME, COUNT(P_ID) from PRODUCTD GR
OUP BY GROUPING SETS ((P_NAME, P_ID, O_ID) (P_NAME, P_ID) (P_ID)() )
SQL0104N  An unexpected token "(" was found following "(P_NAME, P_ID, O_ID)".
Expected tokens may include:   "<not_of_type>".   SQLSTATE=42601

C:\Program Files\IBM\SQLLIB\MISC>db2 SELECT P_NAME, COUNT(P_ID) from PRODUCTD GR
OUP BY GROUPING SETS ((P_NAME, P_ID, O_ID) (P_NAME, P_ID) (P_ID) )
SQL0104N  An unexpected token "(" was found following "(P_NAME, P_ID, O_ID)".
Expected tokens may include:   "<not_of_type>".   SQLSTATE=42601

C:\Program Files\IBM\SQLLIB\MISC>db2 SELECT P_NAME, COUNT(P_ID) from PRODUCTD GR
OUP BY GROUPING SETS (( P_ID,P_NAME, O_ID) (P_ID, P_NAME) (P_ID) )
SQL0104N  An unexpected token "(" was found following "( P_ID,P_NAME, O_ID)".
Expected tokens may include:   "<not_of_type>".   SQLSTATE=42601

C:\Program Files\IBM\SQLLIB\MISC>db2 select P_ID, P_NAME, SUM(O_ID) Total from P
RODUCTD GROUP BY P_ID, P_NAME

P_ID          P_NAME                   TOTAL
------------- ------------------------ -------------
            1 RADIO                                1
            2 TV                                   2
            3 CAR                                  3

  3 record(s) selected.


C:\Program Files\IBM\SQLLIB\MISC>db2 select P_ID, P_NAME, SUM(O_ID) Total from P
RODUCTD GROUP BY P_ID, P_NAME

P_ID          P_NAME                   TOTAL
------------- ------------------------ -------------
            1 RADIO                                1
            2 TV                                   2
            3 CAR                                  3

  3 record(s) selected.


C:\Program Files\IBM\SQLLIB\MISC>db2 select P_ID, P_NAME, SUM(O_ID) Total from P
RODUCTD GROUP BY P_ID, P_NAME

P_ID          P_NAME                   TOTAL
------------- ------------------------ -------------
            1 RADIO                                1
            2 TV                                   2
            3 CAR                                  3

  3 record(s) selected.


C:\Program Files\IBM\SQLLIB\MISC>
```

Explain plan:

```
C:\Program Files\IBM\SQLLIB\MISC>db2exfmt
DB2 Universal Database Version 11.1, 5622-044 (c) Copyright IBM Corp. 1991, 2015

Licensed Material - Program Property of IBM
IBM DATABASE 2 Explain Table Format Tool

Enter Database Name ==> PRODUCT
Connecting to the Database.
Connect to Database Successful.
Enter up to 26 character Explain timestamp (Default -1) ==>
Enter up to 128 character source name (SOURCE_NAME, Default %%) ==>
Enter source schema (SOURCE_SCHEMA, Default %%) ==>
Enter section number (0 for all, Default 0) ==>
Enter outfile name. Default is to terminal ==>
DB2 Universal Database Version 11.1, 5622-044 (c) Copyright IBM Corp. 1991, 2015

Licensed Material - Program Property of IBM
IBM DATABASE 2 Explain Table Format Tool



******************** EXPLAIN INSTANCE ********************

DB2_VERSION:         11.01.1
FORMATTED ON DB:     PRODUCT
SOURCE_NAME:         SQLC2O26
SOURCE_SCHEMA:       NULLID
SOURCE_VERSION:
EXPLAIN_TIME:        2017-02-27-15.51.14.770000
EXPLAIN_REQUESTER: AALOK

Database Context:
------------------
        Parallelism:          None
        CPU Speed:            2.676617e-007
        Comm Speed:           0
        Buffer Pool size:     5000
        Sort Heap size:       256
        Database Heap size:   2287
        Lock List size:       8033
        Maximum Lock List:    60
        Average Applications: 1
        Locks Available:      154233

Package Context:
-----------------
        SQL Type:             Dynamic
        Optimization Level: 5
        Blocking:             Block All Cursors
        Isolation Level:      Cursor Stability



------------------ STATEMENT 1   SECTION 203 ------------------
        QUERYNO:        1
```

```
------------------ STATEMENT 1   SECTION 203 ------------------
        QUERYNO:            1
        QUERYTAG:
        Statement Type:    Select
        Updatable:         No
        Deletable:         No
        Query Degree:      1

Original Statement:
-------------------
SELECT
  *
FROM
  plan_table


Optimized Statement:
--------------------
SELECT
  Q1.CNAME AS "CNAME",
  Q1.CADDRESS AS "CADDRESS",
  Q1.CPHNO AS "CPHNO"
FROM
  AALOK.PLAN_TABLE AS Q1

Access Plan:
------------
        Total Cost:             6.80251
        Query Degree:           1


    Rows
   RETURN
   (   1)
    Cost
    I/O
     |
     51
   TBSCAN
   (   2)
   6.80251
     1
     |
     51
 TABLE: AALOK
   PLAN_TABLE
       Q1




Extended Diagnostic Information:
-------------------------------


Diagnostic Identifier:   1
Diagnostic Details:      EXP0020W  Table has no statistics.  The table
                         "AALOK   "."PLAN_TABLE" has not had runstats run on
                         it.  This may result in a sub-optimal access plan
```

```
                 :
                51
 TABLE: AALOK
    PLAN_TABLE
         Q1




Extended Diagnostic Information:
---------------------------------


Diagnostic Identifier:    1
Diagnostic Details:       EXP0020W  Table has no statistics.  The table
                          "AALOK   "."PLAN_TABLE" has not had runstats run on
                          it.  This may result in a sub-optimal access plan
                          and poor performance.


Plan Details:
-------------


         1) RETURN: (Return Result)
                 Cumulative Total Cost:          6.80251
                 Cumulative CPU Cost:            140137
                 Cumulative I/O Cost:            1
                 Cumulative Re-Total Cost:       0.0239675
                 Cumulative Re-CPU Cost:         89544
                 Cumulative Re-I/O Cost:         0
                 Cumulative First Row Cost:      6.779
                 Estimated Bufferpool Buffers:   1

                 Arguments:
                 ----------
                 BLDLEVEL: (Build level)
                         DB2 v11.1.1010.160 : s1612051900
                 HEAPUSE : (Maximum Statement Heap Usage)
                         80 Pages
                 PLANID  : (Access plan identifier)
                         7891cb1cc5c4102c
                 PREPTIME: (Statement prepare time)
                             517 milliseconds
                 SEMEVID : (Semantic environment identifier)
                         ee50b7e0fbc76ff8
                 STMTHEAP: (Statement heap size)
                         8192
                 STMTID  : (Normalized statement identifier)
                         bef9e4aff8af5707

                 Input Streams:
                 --------------
                         2) From Operator #2

                                 Estimated number of rows:        51
                                 Number of columns:               3
                                 Subquery predicate ID:           Not Applicable

                                 Column Names:
```

```
                            Column Names:
                            ------------
                            +Q2.CPHNO+Q2.CADDRESS+Q2.CNAME


        2) TBSCAN: (Table Scan)
                Cumulative Total Cost:          6.80251
                Cumulative CPU Cost:            140137
                Cumulative I/O Cost:            1
                Cumulative Re-Total Cost:       0.0239675
                Cumulative Re-CPU Cost:         89544
                Cumulative Re-I/O Cost:         0
                Cumulative First Row Cost:      6.779
                Estimated Bufferpool Buffers:   1

                Arguments:
                ----------
                CUR_COMM: (Currently Committed)
                        TRUE
                LCKAVOID: (Lock Avoidance)
                        TRUE
                MAXPAGES: (Maximum pages for prefetch)
                        ALL
                PREFETCH: (Type of Prefetch)
                        NONE
                ROWLOCK : (Row Lock intent)
                        SHARE (CS/RS)
                SCANDIR : (Scan Direction)
                        FORWARD
                SKIP_INS: (Skip Inserted Rows)
                        TRUE
                SPEED   : (Assumed speed of scan, in sharing structures)
                        FAST
                TABLOCK : (Table Lock intent)
                        INTENT SHARE
                TBISOLVL: (Table access Isolation Level)
                        CURSOR STABILITY
                THROTTLE: (Scan may be throttled, for scan sharing)
                        TRUE
                VISIBLE : (May be included in scan sharing structures)
                        TRUE
                WRAPPING: (Scan may start anywhere and wrap)
                        TRUE

                Input Streams:
                --------------
                        1) From Object AALOK.PLAN_TABLE

                                Estimated number of rows:    51
                                Number of columns:           4
                                Subquery predicate ID:       Not Applicable

                                Column Names:
                                ------------
                                +Q1.$RID$+Q1.CPHNO+Q1.CADDRESS+Q1.CNAME
```

```
Administrator: DB2 CLP - DB2COPY1                                          _ □ X

                    Input Streams:
                    --------------
                            1> From Object AALOK.PLAN_TABLE

                                    Estimated number of rows:       51
                                    Number of columns:              4
                                    Subquery predicate ID:          Not Applicable

                                    Column Names:
                                    ------------
                                    +Q1.$RID$+Q1.CPHNO+Q1.CADDRESS+Q1.CNAME

                    Output Streams:
                    ---------------
                            2> To Operator #1

                                    Estimated number of rows:       51
                                    Number of columns:              3
                                    Subquery predicate ID:          Not Applicable

                                    Column Names:
                                    ------------
                                    +Q2.CPHNO+Q2.CADDRESS+Q2.CNAME

Objects Used in Access Plan:
----------------------------

        Schema: AALOK
        Name:   PLAN_TABLE
        Type:   Table
                            Time of creation:               2017-02-27-15.50.04.0410
00
                            Last statistics update:
                            Number of columns:              3
                            Number of rows:                 51
                            Width of rows:                  52
                            Number of buffer pool pages:    1
                            Number of data partitions:      1
                            Distinct row values:            No
                            Tablespace name:                USERSPACE1
                            Tablespace overhead:            6.725000
                            Tablespace transfer rate:       0.040000
                            Source for statistics:          Single Node
                            Prefetch page count:            32
                            Container extent page count:    32
                            Table overflow record count:    0
                            Table Active Blocks:            -1
                            Average Row Compression Ratio:  0
                            Percentage Rows Compressed:     0
                            Average Compressed Row Size:    0

Executing Connect Reset -- Connect Reset was Successful.

C:\Program Files\IBM\SQLLIB\MISC>
```

Graph Data Store

```
[Janals-MacBook-Air:curl janalbhandari$ GRAPH="graph"
 Janals-MacBook-Air:curl janalbhandari$ curl "$URL/_graphs/$GRAPH" \
[>      -X POST \
>       -H "Authorization: gds-token $TOKEN" \
>       -d '' | jq '.'
{
[  "graphId": "graph",
   "dbUrl": "https://ibmgraph-alpha.ng.bluemix.net/e9db3bab-8c73-4ca8-9ace-1ee2f1c31e03/graph"
}
Janals-MacBook-Air:curl janalbhandari$ SCHEMA='{ "propertyKeys":[{"name": "Cname", "dataType": "String", "cardinality": "SINGLE"},
>     {"name": "Email", "dataType": "String", "cardinality": "SINGLE"},
>     {"name": "Address", "dataType": "String", "cardinality": "SINGLE"},
>     {"name": "Number", "dataType": "Integer", "cardinality": "SINGLE"},
>     {"name": "Pname", "dataType": "String", "cardinality": "SINGLE"},
>     {"name": "Pcategory", "dataType": "String", "cardinality": "SINGLE"},
>     {"name": "Price", "dataType": "Integer", "cardinality": "SINGLE"},
>     {"name": "Pcode", "dataType": "Integer", "cardinality": "SINGLE"}
>     ],
>   "vertexLabels":[{"name": "customer"},{"name": "product"},{"name": "category"}],
>
>   "edgeLabels":[
>       {"name": "buys", "multiplicity": "MULTI"},
>       {"name": "belongs_to", "multiplicity": "MULTI"},
>       {"name": "recommends", "multiplicity": "MULTI"}],
>
>     "vertexIndexes": [
>       {"name": "vByName", "propertyKeys": ["Cname"], "composite": false, "unique": false},
>       {"name": "vByEmail", "propertyKeys": ["Email"], "composite": false, "unique": false}
>       {"name": "vByNumber", "propertyKeys": ["Number"], "composite": false, "unique": false}
>       {"name": "vByPrice", "propertyKeys": ["Price"], "composite": false, "unique": false}
>       {"name": "vBycategory", "propertyKeys": ["Pcategory"], "composite": false, "unique": false}
>       {"name": "vByAddress", "propertyKeys": ["Address"], "composite": false, "unique": false}
>       {"name": "vByPname", "propertyKeys": ["Pname"], "composite": false, "unique": false}],
>     "edgeIndexes" : []
>
>   }
> '

Janals-MacBook-Air:curl janalbhandari$ curl "$URL/$GRAPH/schema" \-X POST \-H "Authorization: gds-token $TOKEN" \-H 'Content-Type: application/json' \-d "$SCHEMA" | jq '.'
{
  "requestId": "f8947ec2-fb6e-47a8-afc0-b66e70ee6ae4",
  "status": {
    "message": "",
    "code": 200,
    "attributes": {}
  },
  "result": {
    "data": [
      {
        "propertyKeys": [
          {
            "name": "Cname",
            "dataType": "String",
            "cardinality": "SINGLE"
          },
          {
            "name": "Email",
            "dataType": "String",
            "cardinality": "SINGLE"
          },
          {
            "name": "Address",
            "dataType": "String",
            "cardinality": "SINGLE"
          },
          {
            "name": "Number",
            "dataType": "Integer",
            "cardinality": "SINGLE"
          },
          {
            "name": "Pname",
            "dataType": "String",
            "cardinality": "SINGLE"
          },
          {
            "name": "Pcategory",
            "dataType": "String",
            "cardinality": "SINGLE"
          },
          {
            "name": "Price",
            "dataType": "Integer",
            "cardinality": "SINGLE"
          },
          {
            "name": "Pcode",
            "dataType": "Integer",
            "cardinality": "SINGLE"
          }
        ],
        "vertexLabels": [
          {
            "name": "customer"
          },
          {
            "name": "product"
          },
          {
            "name": "category"
```

```
Janals-MacBook-Air:curl janalbhandari$ cat << ENDGREMLIN >gremlin.json{
> "gremlin": "
>   def janal =  graph.addVertex(T.label, 'customer', 'Cname', 'Janal', 'Email', 'janalbhandari@gmail.com', 'Address', 'San Jose', 'Number', '1234567890');
>   def laptop = graph.addVertex(T.label, 'product', 'Pname', 'Laptop', 'Pcategory', 'Electronics', 'Price', '1000', 'Pcode', '1234');
>   def electronics = graph.addVertex(T.label, 'category');
>
>   def dixita =  graph.addVertex(T.label, 'customer', 'Cname', 'Dixita', 'Email', 'dixitapatodiya@gmail.com', 'Address', 'San Jose', 'Number', '1235870912');
>   def headphones = graph.addVertex(T.label, 'product', 'Pname', 'Headphones', 'Pcategory', 'Electronics', 'Price', '500', 'Pcode', '3487');
>
>   def avni =  graph.addVertex(T.label, 'customer', 'Cname', 'Avni', 'Email', 'avnigulati@gmail.com', 'Address', 'San Jose', 'Number', '7462190463');
>   def dress = graph.addVertex(T.label, 'product', 'Pname', 'dress', 'Pcategory', 'Clothing', 'Price', '1250', 'Pcode', '8721');
>   def clothing = graph.addVertex(T.label, 'category');
>
>   def vini =  graph.addVertex(T.label, 'customer', 'Cname', 'Janal', 'Email', 'vini0123@gmail.com', 'Address', 'San Jose', 'Number', '02894917438');
>   def pizza = graph.addVertex(T.label, 'product', 'Pname', 'food', 'Pcategory', 'Food', 'Price', '30', 'Pcode', '6371');
>   def food = graph.addVertex(T.label, 'category');
>
>
>
>   janal.addEdge('buys', laptop);
>   laptop.addEdge('belongs_to', electronics);
>   janal.addEdge('recommends', dixita);
>
>   dixita.addEdge('buys', headphones);
>   dixita.addEdge('buys', laptop);
>   headphones.addEdge('belongs_to', electronics);
>
>   avni.addEdge('buys', dress);
>   dress.addEdge('belongs_to', clothing);
>   avni.addEdge('recommends', dixita);
>   avni.addEdge('recommends', janal);
>
>   vini.addEdge('buys', pizza);
>   pizza.addEdge('belongs_to', food);
>   vini.addEdge('recommends', dixita);
>   vini.addEdge('recommends', janal);
>   vini.addEdge('recommends', avni);
>
>   janal.addEdge('buys', pizza);"
>   }
> ENDGREMLIN
```
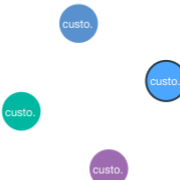
```
def g = graph.traversal(); g.V().has("Cname", "Janal");
```



```
111         ],
112   ▾       "Number": [
113           {
114             "id": "5jh-9k8-35x",
115             "value": 2894917438
116           }
117         ],
118   ▾       "Cname": [
119           {
120             "id": "4ct-9k8-sl",
121             "value": "Janal"
122           }
123         ]
124       }
125     }
126   ]
```

Filter: (Label) (Type) (Properties)   Vertices: 4

```
def v1 = graph.addVertex("Cname", "Janal", label, "customer", "Address", "San Jose");def v2 = graph.addV
```

```
1   ▾ [
2   ▾   {
3         "id": "oen0k-oepeo-9hx-oespk",
4         "label": "buys",
5         "type": "edge",
6         "inVLabel": "product",
7         "outVLabel": "customer",
8         "inV": 41001176,
9         "outV": 40996896
10      }
11    ]
```

Filter: (Label) (Type)   Vertices: 0

```
def gt = graph.traversal();gt.V().hasLabel("customer").has("Cname", "Dixita").outE("buys").inV().hasLabe
```

```
1    ▼ [
2    ▼    {
3    ▼       "labels": [
4                [],
5                [],
6                []
7            ],
8    ▼       "objects": [
9    ▼          {
10               "id": 4232,
11               "label": "customer",
12               "type": "vertex",
13   ▼           "properties": {
14   ▼             "Email": [
15   ▼               {
```

Filter: Label   Type   Properties

Vertices: **6**