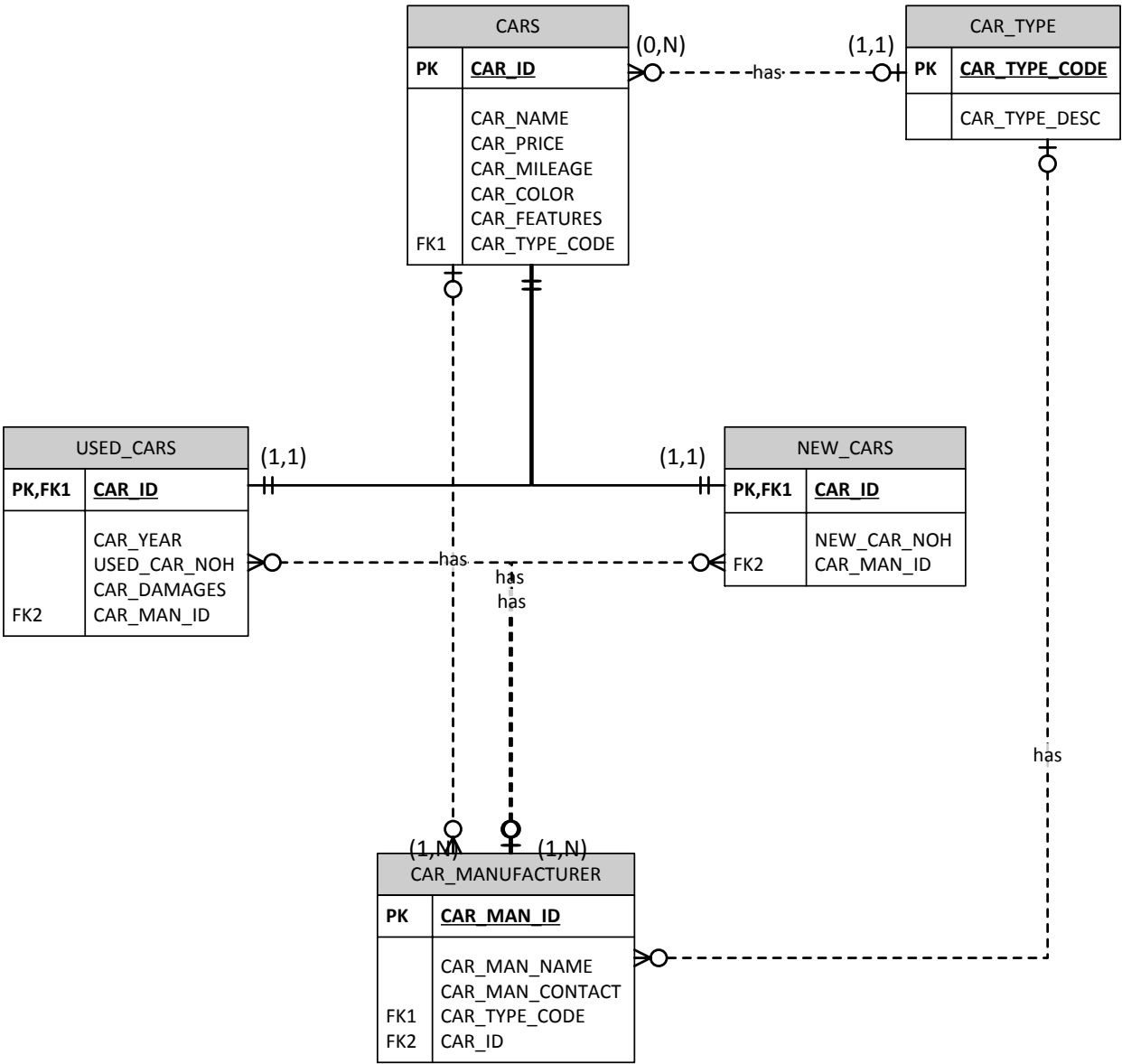


IT 214-003

Student Name: Rashmee Prakash

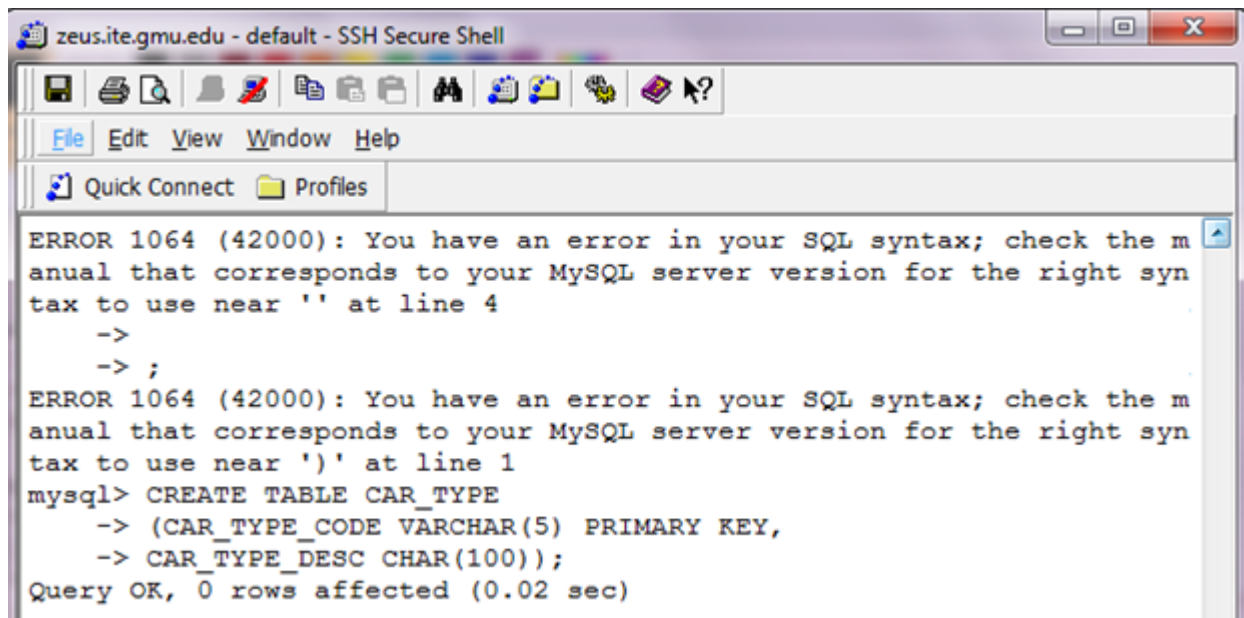
Topic: Car Dealership

Discovery Car Dealership Database



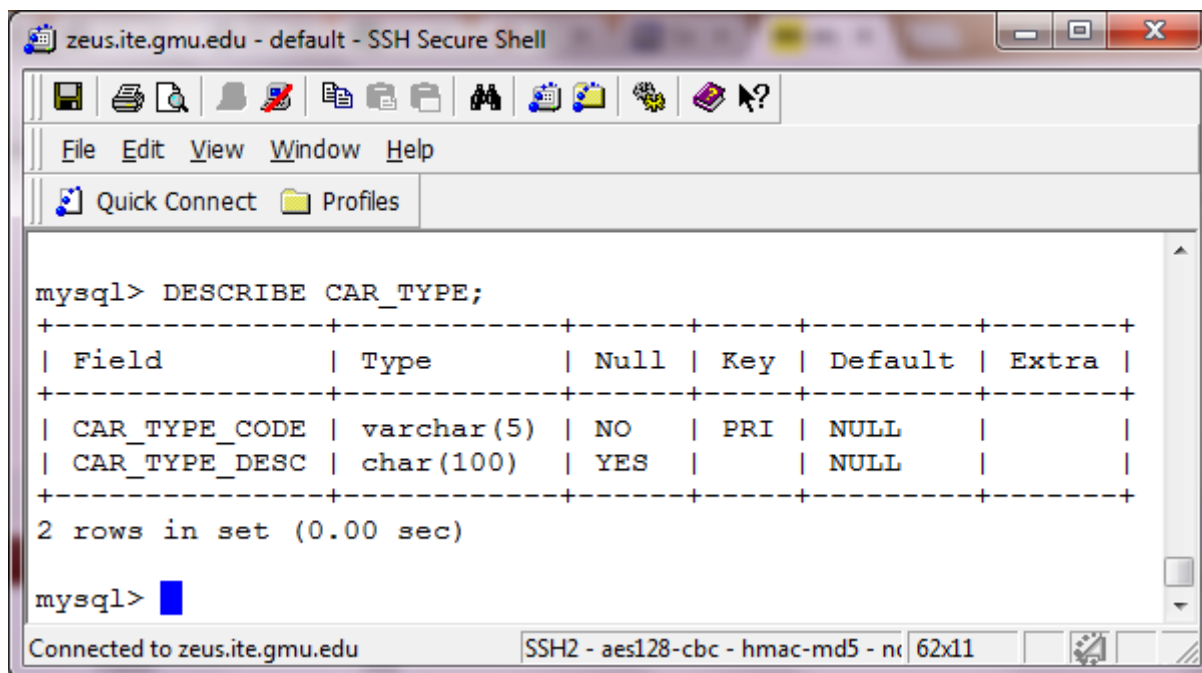
CREATING AND ALTERING TABLES

Creating table **CAR_TYPE**



```
zeus.ite.gmu.edu - default - SSH Secure Shell
File Edit View Window Help
Quick Connect Profiles

ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near '' at line 4
->
-> ;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near ')' at line 1
mysql> CREATE TABLE CAR_TYPE
-> (CAR_TYPE_CODE VARCHAR(5) PRIMARY KEY,
-> CAR_TYPE_DESC CHAR(100));
Query OK, 0 rows affected (0.02 sec)
```



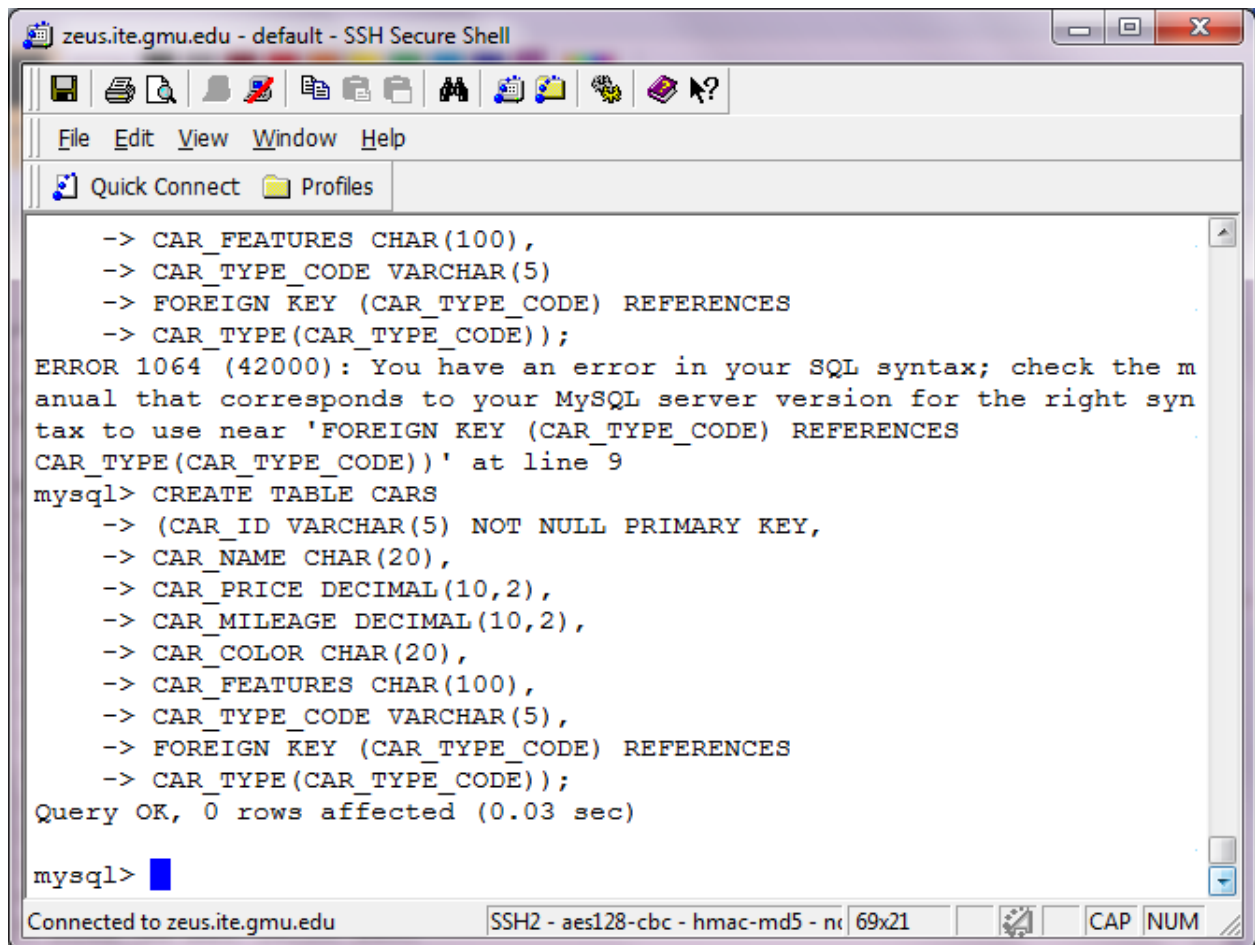
```
zeus.ite.gmu.edu - default - SSH Secure Shell
File Edit View Window Help
Quick Connect Profiles

mysql> DESCRIBE CAR_TYPE;
+-----+-----+-----+-----+-----+-----+
| Field          | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| CAR_TYPE_CODE | varchar(5)    | NO   | PRI | NULL    |       |
| CAR_TYPE_DESC | char(100)     | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)

mysql> 
```

Connected to zeus.ite.gmu.edu SSH2 - aes128-cbc - hmac-md5 - nr 62x11

Creating table CARS



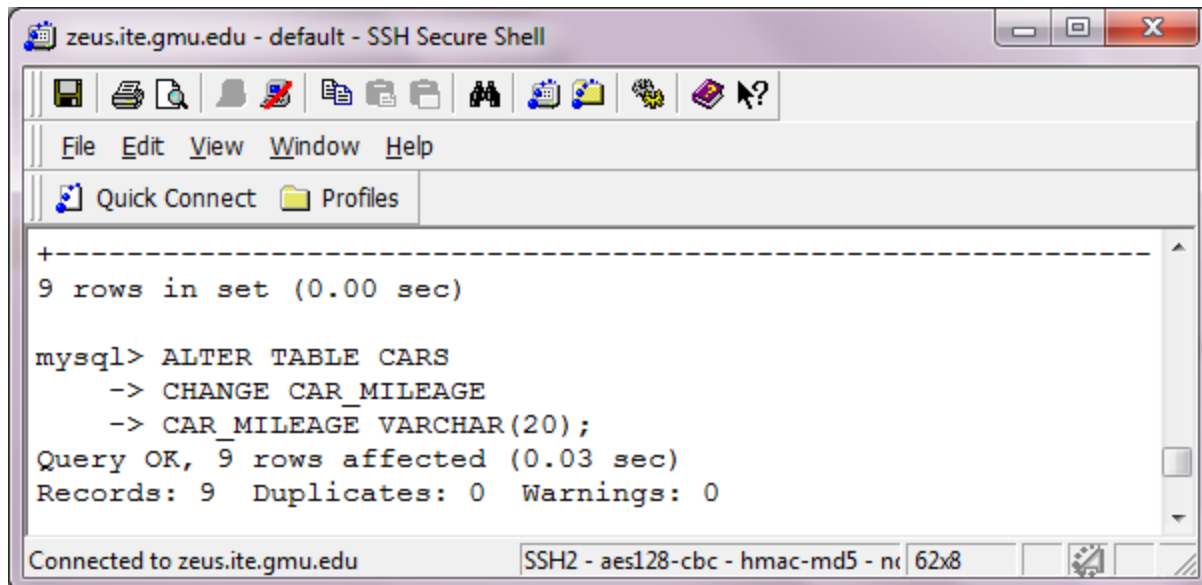
The screenshot shows a terminal window titled "zeus.ite.gmu.edu - default - SSH Secure Shell". The window has a menu bar with "File", "Edit", "View", "Window", and "Help". Below the menu bar is a toolbar with various icons. The main text area contains the following content:

```
-> CAR_FEATURES CHAR(100),
-> CAR_TYPE_CODE VARCHAR(5)
-> FOREIGN KEY (CAR_TYPE_CODE) REFERENCES
-> CAR_TYPE(CAR_TYPE_CODE));
ERROR 1064 (42000): You have an error in your SQL syntax; check the m
anual that corresponds to your MySQL server version for the right syn
tax to use near 'FOREIGN KEY (CAR_TYPE_CODE) REFERENCES
CAR_TYPE(CAR_TYPE_CODE))' at line 9
mysql> CREATE TABLE CARS
-> (CAR_ID VARCHAR(5) NOT NULL PRIMARY KEY,
-> CAR_NAME CHAR(20),
-> CAR_PRICE DECIMAL(10,2),
-> CAR_MILEAGE DECIMAL(10,2),
-> CAR_COLOR CHAR(20),
-> CAR_FEATURES CHAR(100),
-> CAR_TYPE_CODE VARCHAR(5),
-> FOREIGN KEY (CAR_TYPE_CODE) REFERENCES
-> CAR_TYPE(CAR_TYPE_CODE));
Query OK, 0 rows affected (0.03 sec)

mysql> █
```

At the bottom of the window, there is a status bar that reads "Connected to zeus.ite.gmu.edu" and "SSH2 - aes128-cbc - hmac-md5 - n". To the right of this, there are several icons and the text "69x21", "CAP", and "NUM".

Changing data type of **CAR_MILEAGE** from **DECIMAL** to **VARCHAR**



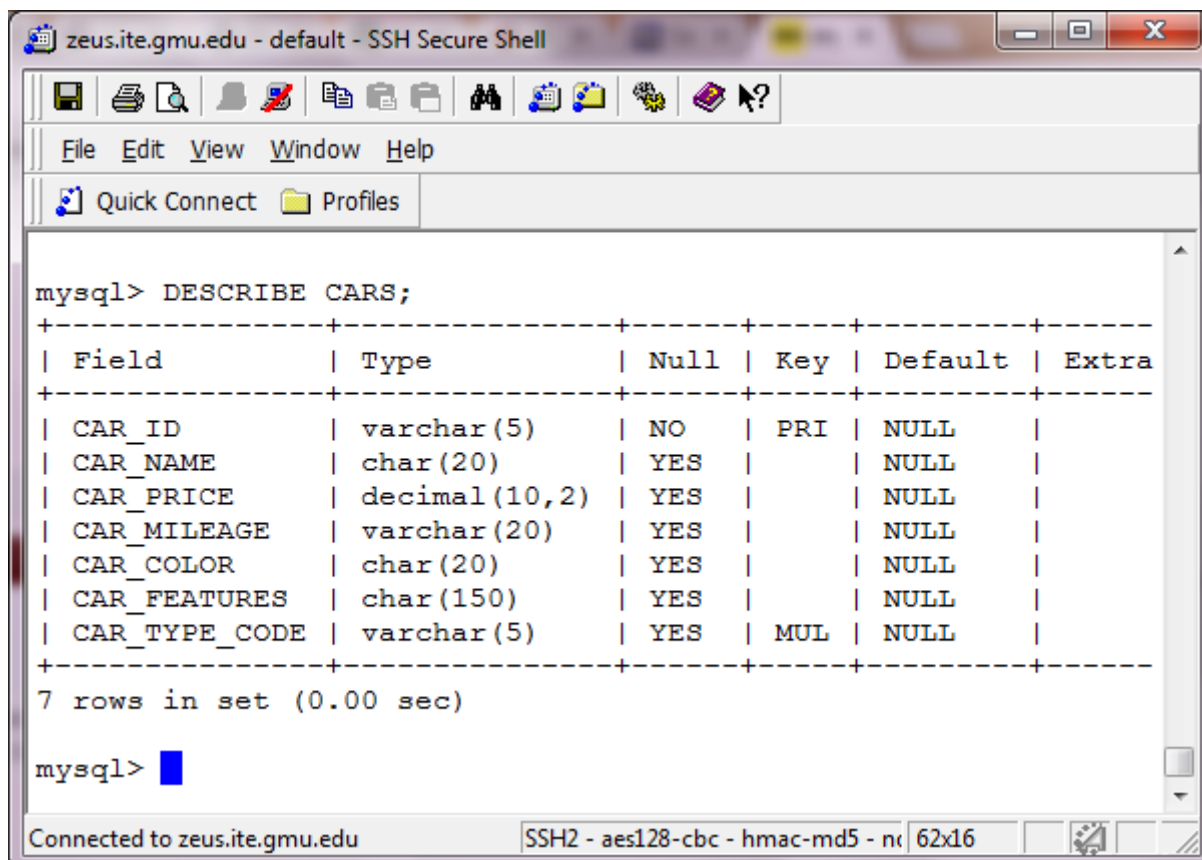
The image shows a terminal window titled "zeus.ite.gmu.edu - default - SSH Secure Shell". It contains a MySQL command prompt where the user has executed an ALTER TABLE statement to change the data type of the CAR_MILEAGE column from DECIMAL to VARCHAR(20). The output indicates that 9 rows were affected, with no duplicates or warnings.

```
zeus.ite.gmu.edu - default - SSH Secure Shell
File Edit View Window Help
Quick Connect Profiles

+-----+
9 rows in set (0.00 sec)

mysql> ALTER TABLE CARS
      -> CHANGE CAR_MILEAGE
      -> CAR_MILEAGE VARCHAR(20);
Query OK, 9 rows affected (0.03 sec)
Records: 9  Duplicates: 0  Warnings: 0

Connected to zeus.ite.gmu.edu    SSH2 - aes128-cbc - hmac-md5 - n  62x8
```



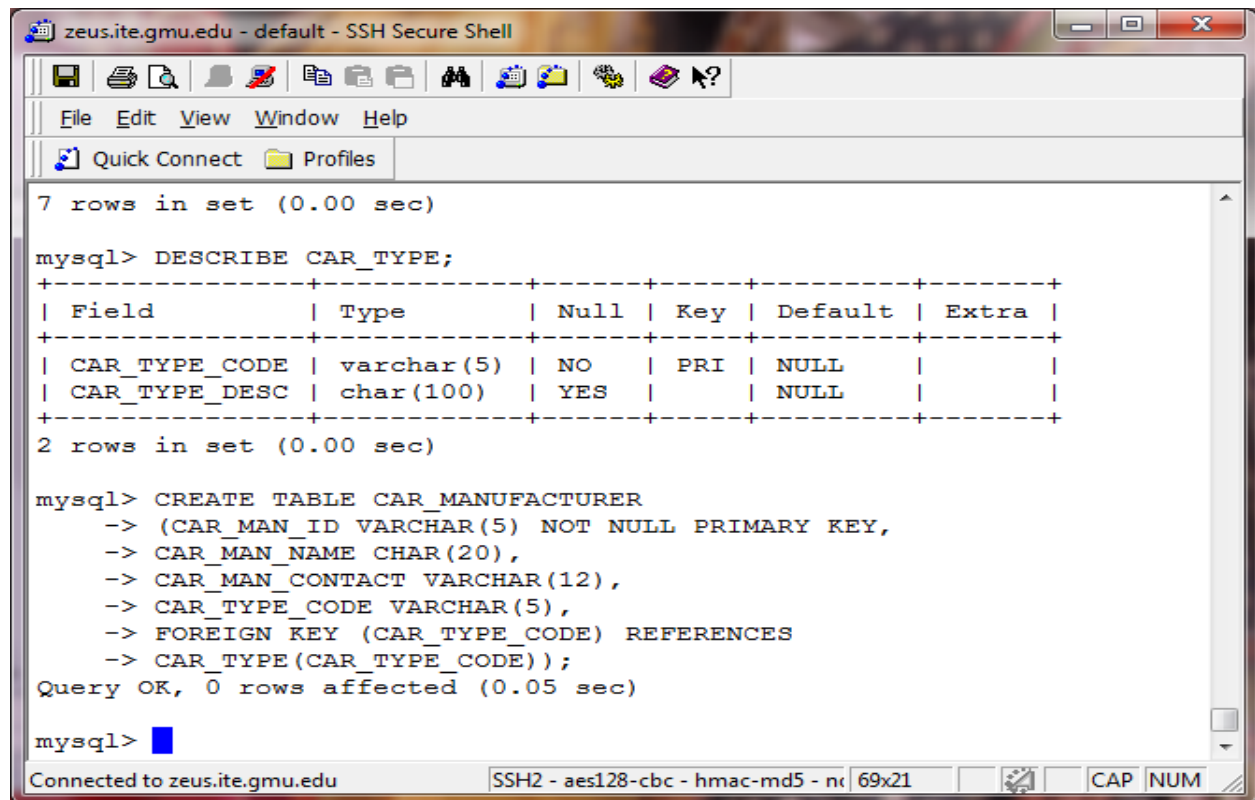
The image shows a terminal window titled "zeus.ite.gmu.edu - default - SSH Secure Shell". It contains a MySQL command prompt where the user has executed a DESCRIBE statement for the CARS table. The output shows the table structure with columns: CAR_ID, CAR_NAME, CAR_PRICE, CAR_MILEAGE, CAR_COLOR, CAR_FEATURES, and CAR_TYPE_CODE. The data types and constraints are listed for each column.

```
zeus.ite.gmu.edu - default - SSH Secure Shell
File Edit View Window Help
Quick Connect Profiles

mysql> DESCRIBE CARS;
+-----+-----+-----+-----+-----+-----+
| Field          | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| CAR_ID         | varchar(5)    | NO   | PRI | NULL    |       |
| CAR_NAME       | char(20)      | YES  |     | NULL    |       |
| CAR_PRICE      | decimal(10,2) | YES  |     | NULL    |       |
| CAR_MILEAGE    | varchar(20)   | YES  |     | NULL    |       |
| CAR_COLOR      | char(20)      | YES  |     | NULL    |       |
| CAR_FEATURES   | char(150)     | YES  |     | NULL    |       |
| CAR_TYPE_CODE  | varchar(5)    | YES  | MUL | NULL    |       |
+-----+-----+-----+-----+-----+-----+
7 rows in set (0.00 sec)

mysql> 
```

Creating table **CAR_MANUFACTURER**



zeus.ite.gmu.edu - default - SSH Secure Shell

7 rows in set (0.00 sec)

```
mysql> DESCRIBE CAR_TYPE;
```

Field	Type	Null	Key	Default	Extra
CAR_TYPE_CODE	varchar(5)	NO	PRI	NULL	
CAR_TYPE_DESC	char(100)	YES		NULL	

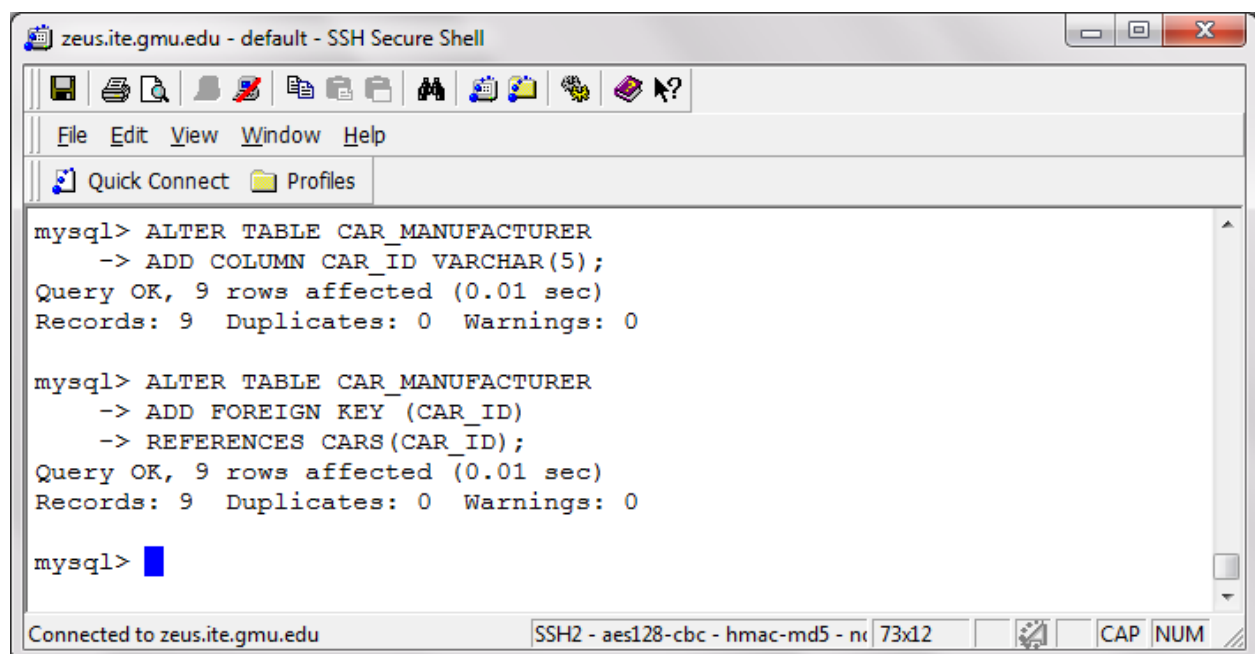
2 rows in set (0.00 sec)

```
mysql> CREATE TABLE CAR_MANUFACTURER
-> (CAR_MAN_ID VARCHAR(5) NOT NULL PRIMARY KEY,
-> CAR_MAN_NAME CHAR(20),
-> CAR_MAN_CONTACT VARCHAR(12),
-> CAR_TYPE_CODE VARCHAR(5),
-> FOREIGN KEY (CAR_TYPE_CODE) REFERENCES
-> CAR_TYPE(CAR_TYPE_CODE));
Query OK, 0 rows affected (0.05 sec)

mysql>
```

Connected to zeus.ite.gmu.edu SSH2 - aes128-cbc - hmac-md5 - nc 69x21 CAP NUM

Adding column **CAR_ID** and making it a **foreign key** that references **CAR_ID** from **CARS**



zeus.ite.gmu.edu - default - SSH Secure Shell

```
mysql> ALTER TABLE CAR_MANUFACTURER
-> ADD COLUMN CAR_ID VARCHAR(5);
Query OK, 9 rows affected (0.01 sec)
Records: 9 Duplicates: 0 Warnings: 0

mysql> ALTER TABLE CAR_MANUFACTURER
-> ADD FOREIGN KEY (CAR_ID)
-> REFERENCES CARS(CAR_ID);
Query OK, 9 rows affected (0.01 sec)
Records: 9 Duplicates: 0 Warnings: 0

mysql>
```

Connected to zeus.ite.gmu.edu SSH2 - aes128-cbc - hmac-md5 - nc 73x12 CAP NUM

zeus.ite.gmu.edu - default - SSH Secure Shell

File Edit View Window Help

Quick Connect Profiles

```
mysql> DESCRIBE CAR_MANUFACTURER;
```

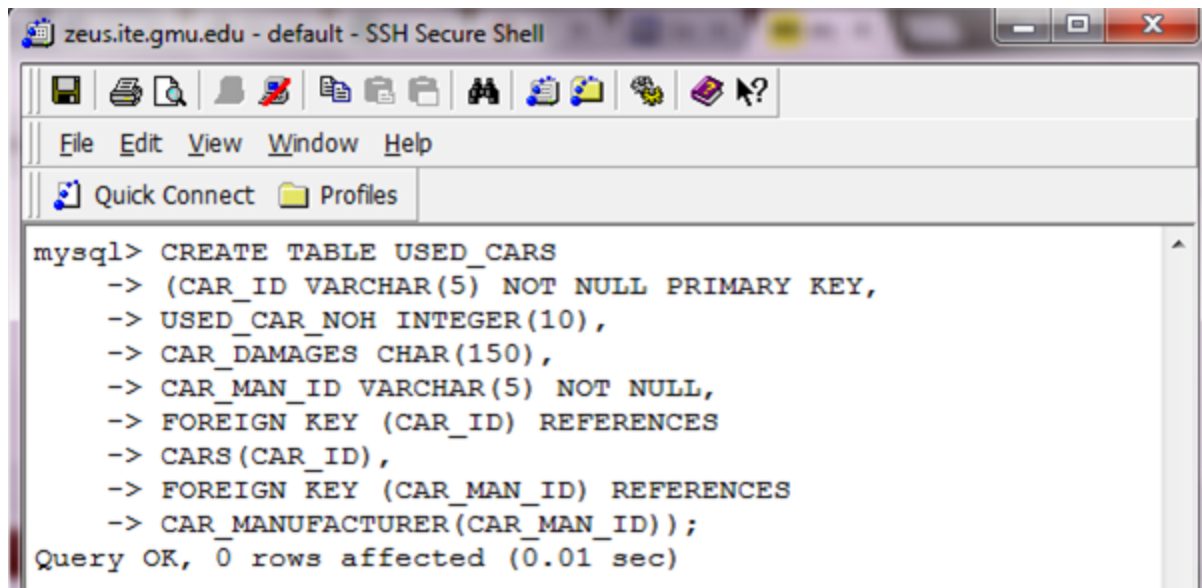
Field	Type	Null	Key	Default	Extra
CAR_MAN_ID	varchar(5)	NO	PRI	NULL	
CAR_MAN_NAME	char(20)	YES		NULL	
CAR_MAN_CONTACT	varchar(12)	YES		NULL	
CAR_TYPE_CODE	varchar(5)	YES	MUL	NULL	
CAR_ID	varchar(5)	YES	MUL	NULL	

5 rows in set (0.00 sec)

```
mysql>
```

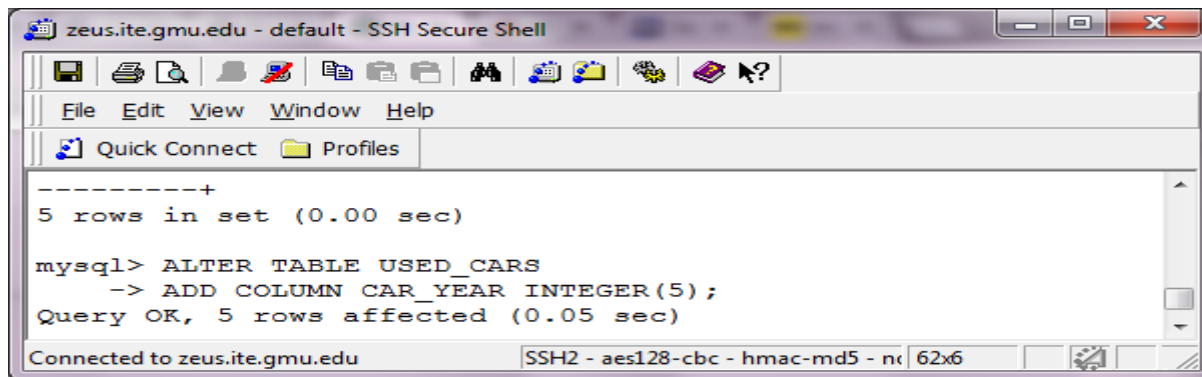
Connected to zeus.ite.gmu.edu SSH2 - aes128-cbc - hmac-md5 - nc 73x13 CAP NUM

Creating table **USED_CARS**



The screenshot shows a terminal window titled "zeus.ite.gmu.edu - default - SSH Secure Shell". The terminal displays the following SQL commands and output:

```
mysql> CREATE TABLE USED_CARS
-> (CAR_ID VARCHAR(5) NOT NULL PRIMARY KEY,
-> USED_CAR_NOH INTEGER(10),
-> CAR DAMAGES CHAR(150),
-> CAR_MAN_ID VARCHAR(5) NOT NULL,
-> FOREIGN KEY (CAR_ID) REFERENCES
-> CARS(CAR_ID),
-> FOREIGN KEY (CAR_MAN_ID) REFERENCES
-> CAR_MANUFACTURER(CAR_MAN_ID));
Query OK, 0 rows affected (0.01 sec)
```



The screenshot shows the same terminal window. It displays the output of a previous query and the execution of an ALTER TABLE command:

```
-----+
5 rows in set (0.00 sec)

mysql> ALTER TABLE USED_CARS
-> ADD COLUMN CAR_YEAR INTEGER(5);
Query OK, 5 rows affected (0.05 sec)
```

At the bottom of the terminal window, the status bar shows: "Connected to zeus.ite.gmu.edu", "SSH2 - aes128-cbc - hmac-md5 - nc", and "62x6".

zeus.ite.gmu.edu - default* - SSH Secure Shell

File Edit View Window Help

Quick Connect Profiles

```
mysql> DESCRIBE USED_CARS;
```

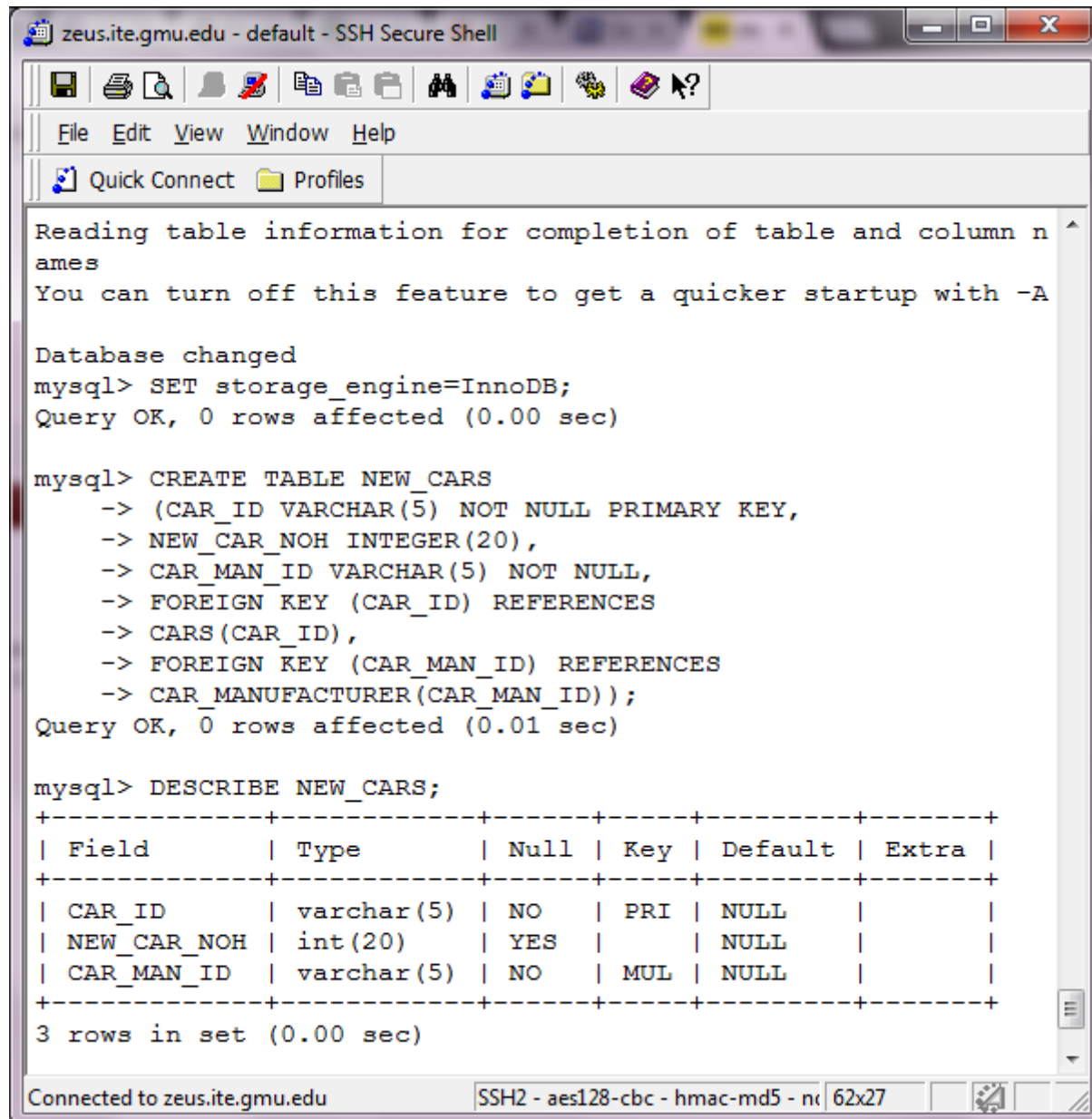
Field	Type	Null	Key	Default	Extra
CAR_ID	varchar(5)	NO	PRI	NULL	
USED_CAR_NOH	int(10)	YES		NULL	
CAR DAMAGES	char(150)	YES		NULL	
CAR_MAN_ID	varchar(5)	NO	MUL	NULL	
CAR_YEAR	int(5)	YES		NULL	

5 rows in set (0.00 sec)

```
mysql>
```

Connecting to zeus.ite.gmu.edu... SSH2 - aes128-cbc - hmac-md5 - n 71x13 CAP NUM

Creating table **NEW_CARS**



```
zeus.ite.gmu.edu - default - SSH Secure Shell

File Edit View Window Help

Quick Connect Profiles

Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

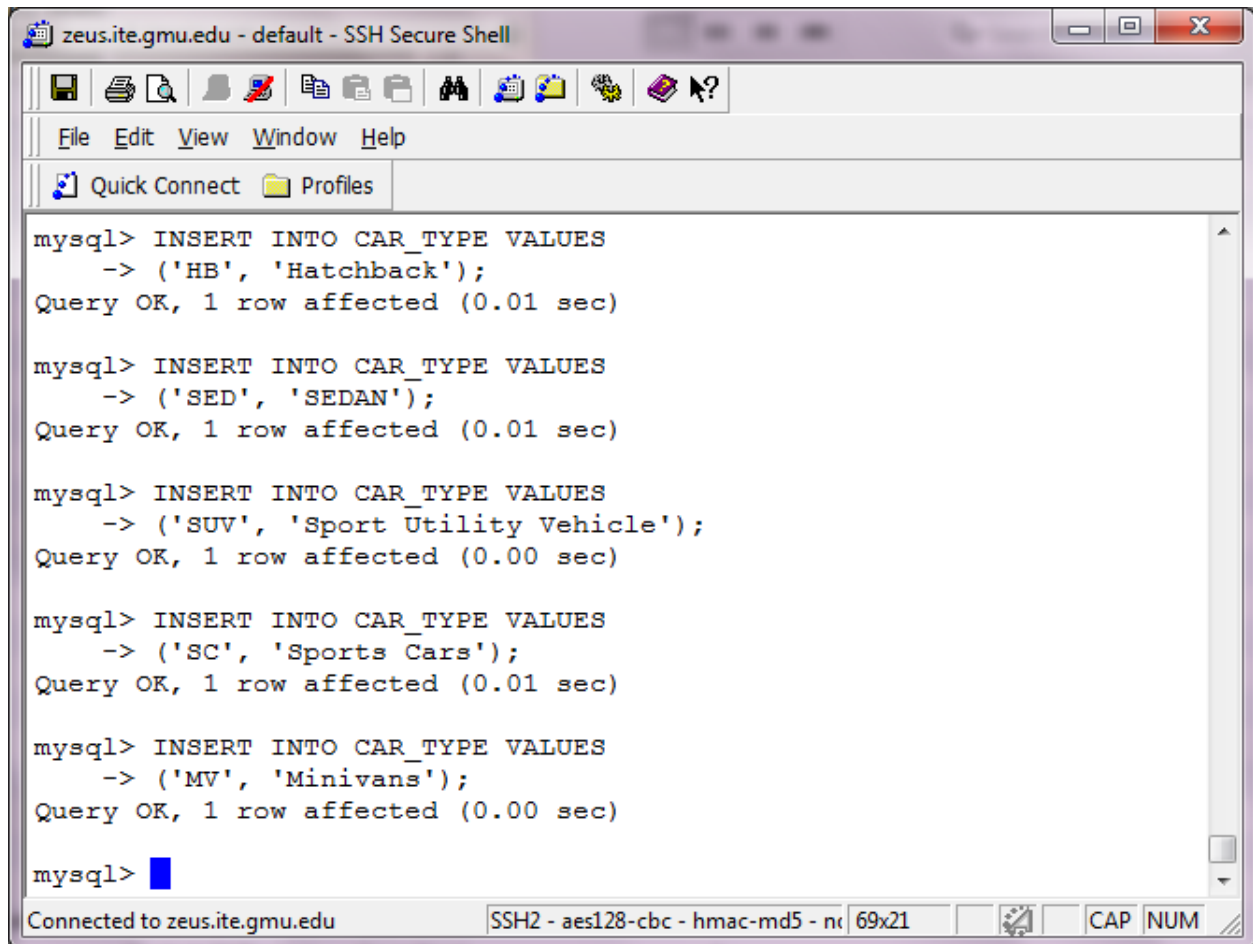
Database changed
mysql> SET storage_engine=InnoDB;
Query OK, 0 rows affected (0.00 sec)

mysql> CREATE TABLE NEW_CARS
  -> (CAR_ID VARCHAR(5) NOT NULL PRIMARY KEY,
  -> NEW_CAR_NOH INTEGER(20),
  -> CAR_MAN_ID VARCHAR(5) NOT NULL,
  -> FOREIGN KEY (CAR_ID) REFERENCES
  -> CARS(CAR_ID),
  -> FOREIGN KEY (CAR_MAN_ID) REFERENCES
  -> CAR_MANUFACTURER(CAR_MAN_ID));
Query OK, 0 rows affected (0.01 sec)

mysql> DESCRIBE NEW_CARS;
+-----+-----+-----+-----+-----+-----+
| Field      | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| CAR_ID     | varchar(5) | NO   | PRI | NULL    |       |
| NEW_CAR_NOH | int(20)    | YES  |     | NULL    |       |
| CAR_MAN_ID | varchar(5) | NO   | MUL | NULL    |       |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)
```

Connected to zeus.ite.gmu.edu SSH2 - aes128-cbc - hmac-md5 - nc 62x27

Inserting records into **CAR_TYPE** table



The screenshot shows a terminal window titled "zeus.ite.gmu.edu - default - SSH Secure Shell". The window has a menu bar with "File", "Edit", "View", "Window", and "Help". Below the menu bar is a toolbar with various icons. The main area of the window displays a series of MySQL commands and their outputs. The commands are used to insert five different car types into the "CAR_TYPE" table. Each command is followed by a confirmation message indicating that one row was affected.

```
mysql> INSERT INTO CAR_TYPE VALUES
      -> ('HB', 'Hatchback');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO CAR_TYPE VALUES
      -> ('SED', 'SEDAN');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO CAR_TYPE VALUES
      -> ('SUV', 'Sport Utility Vehicle');
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO CAR_TYPE VALUES
      -> ('SC', 'Sports Cars');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO CAR_TYPE VALUES
      -> ('MV', 'Minivans');
Query OK, 1 row affected (0.00 sec)

mysql> 
```

At the bottom of the window, there is a status bar that reads "Connected to zeus.ite.gmu.edu" and "SSH2 - aes128-cbc - hmac-md5 - n". To the right of this, there are several icons and the text "69x21", "CAP", and "NUM".

zeus.ite.gmu.edu - default - SSH Secure Shell

File Edit View Window Help

Quick Connect Profiles

```
mysql> INSERT INTO CAR_TYPE VALUES
-> ('SC', 'Sports Cars');
Query OK, 1 row affected (0.01 sec)

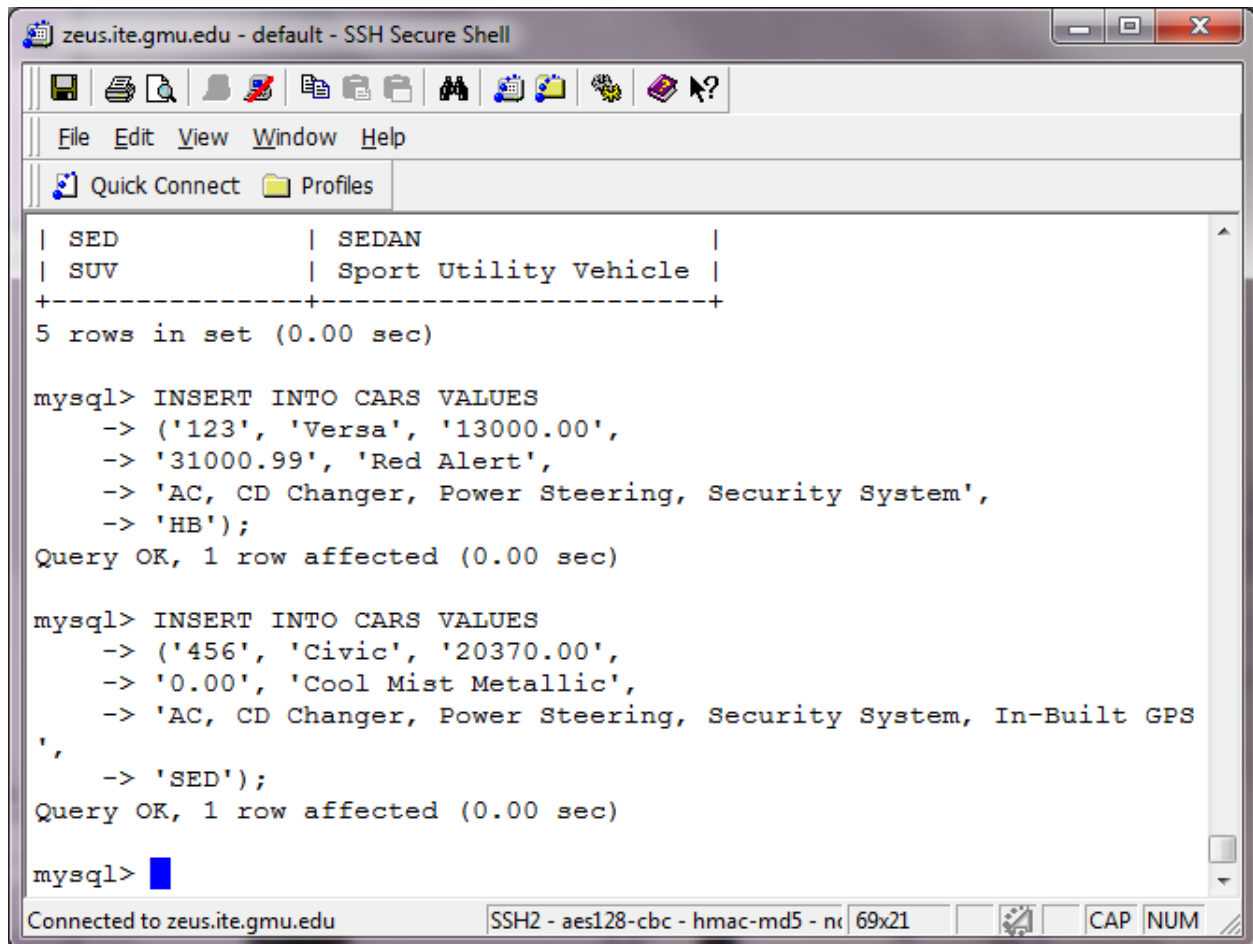
mysql> INSERT INTO CAR_TYPE VALUES
-> ('MV', 'Minivans');
Query OK, 1 row affected (0.00 sec)

mysql> SELECT * FROM CAR_TYPE;
+-----+-----+
| CAR_TYPE_CODE | CAR_TYPE_DESC |
+-----+-----+
| HB            | Hatchback      |
| MV            | Minivans       |
| SC            | Sports Cars    |
| SED           | SEDAN          |
| SUV           | Sport Utility Vehicle |
+-----+-----+
5 rows in set (0.00 sec)

mysql> 
```

Connected to zeus.ite.gmu.edu SSH2 - aes128-cbc - hmac-md5 - nt69x21 CAP NUM

Inserting records in **CARS** table



The screenshot shows an SSH Secure Shell window titled "zeus.ite.gmu.edu - default - SSH Secure Shell". The window contains a terminal session with MySQL commands and output. The output shows a table with 5 rows in a set, followed by two successful INSERT statements into the CARS table.

```
zeus.ite.gmu.edu - default - SSH Secure Shell
File Edit View Window Help
Quick Connect Profiles

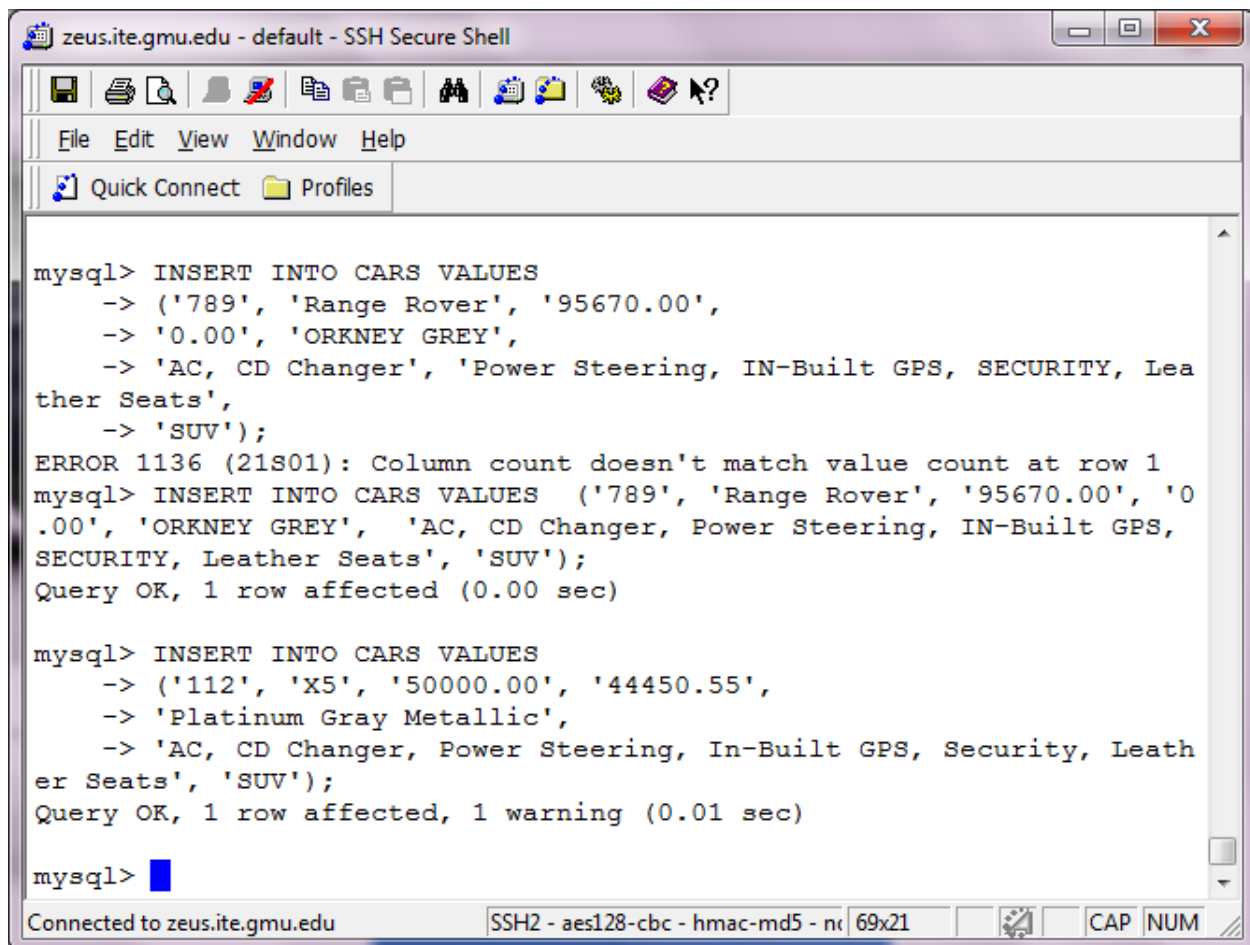
| SED          | SEDAN          |
| SUV          | Sport Utility Vehicle |
+-----+
5 rows in set (0.00 sec)

mysql> INSERT INTO CARS VALUES
-> ('123', 'Versa', '13000.00',
-> '31000.99', 'Red Alert',
-> 'AC, CD Changer, Power Steering, Security System',
-> 'HB');
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO CARS VALUES
-> ('456', 'Civic', '20370.00',
-> '0.00', 'Cool Mist Metallic',
-> 'AC, CD Changer, Power Steering, Security System, In-Built GPS',
-> 'SED');
Query OK, 1 row affected (0.00 sec)

mysql>
```

Connected to zeus.ite.gmu.edu | SSH2 - aes128-cbc - hmac-md5 - n | 69x21 | CAP NUM



```
zeus.ite.gmu.edu - default - SSH Secure Shell

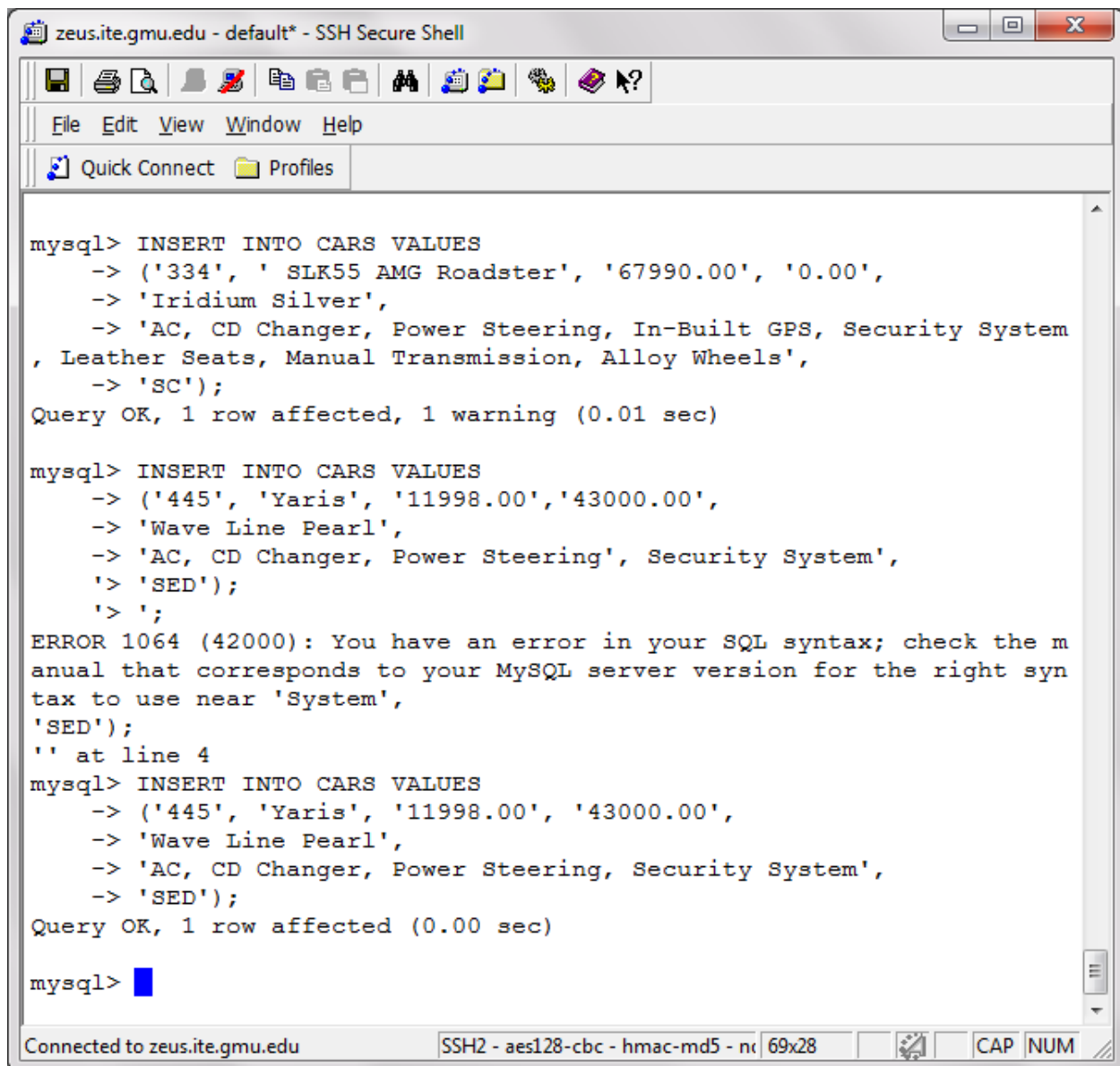
File Edit View Window Help
Quick Connect Profiles

mysql> INSERT INTO CARS VALUES
-> ('789', 'Range Rover', '95670.00',
-> '0.00', 'ORKNEY GREY',
-> 'AC, CD Changer', 'Power Steering, IN-Built GPS, SECURITY, Lea
ther Seats',
-> 'SUV');
ERROR 1136 (21S01): Column count doesn't match value count at row 1
mysql> INSERT INTO CARS VALUES ('789', 'Range Rover', '95670.00', '0
.00', 'ORKNEY GREY', 'AC, CD Changer, Power Steering, IN-Built GPS,
SECURITY, Leather Seats', 'SUV');
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO CARS VALUES
-> ('112', 'X5', '50000.00', '44450.55',
-> 'Platinum Gray Metallic',
-> 'AC, CD Changer, Power Steering, In-Built GPS, Security, Leath
er Seats', 'SUV');
Query OK, 1 row affected, 1 warning (0.01 sec)

mysql> 
```

Connected to zeus.ite.gmu.edu SSH2 - aes128-cbc - hmac-md5 - n 69x21 CAP NUM



```
zeus.ite.gmu.edu - default* - SSH Secure Shell

File Edit View Window Help
Quick Connect Profiles

mysql> INSERT INTO CARS VALUES
-> ('334', ' SLK55 AMG Roadster', '67990.00', '0.00',
-> 'Iridium Silver',
-> 'AC, CD Changer, Power Steering, In-Built GPS, Security System
, Leather Seats, Manual Transmission, Alloy Wheels',
-> 'SC');
Query OK, 1 row affected, 1 warning (0.01 sec)

mysql> INSERT INTO CARS VALUES
-> ('445', 'Yaris', '11998.00', '43000.00',
-> 'Wave Line Pearl',
-> 'AC, CD Changer, Power Steering', Security System',
-> 'SED');
-> ';
ERROR 1064 (42000): You have an error in your SQL syntax; check the m
anual that corresponds to your MySQL server version for the right syn
tax to use near 'System',
'SED');
'' at line 4

mysql> INSERT INTO CARS VALUES
-> ('445', 'Yaris', '11998.00', '43000.00',
-> 'Wave Line Pearl',
-> 'AC, CD Changer, Power Steering, Security System',
-> 'SED');
Query OK, 1 row affected (0.00 sec)

mysql> 
```

Connected to zeus.ite.gmu.edu SSH2 - aes128-cbc - hmac-md5 - n 69x28 CAP NUM

zeus.ite.gmu.edu - default* - SSH Secure Shell

File Edit View Window Help

Quick Connect Profiles

```
annual that corresponds to your MySQL server version for the right syn
tax to use near 'FOUR', '19599.00', '69000.00',
;
'' at line 2
mysql> INSERT INTO CARS VALUES
    -> ('556', 'Prius Four', '19599.00', '69000.00',
    -> 'Sea Glass Pearl',
    -> 'AC, CD Changer, Power Steering, Display Audio, Security Syste
m, Leather Seats',
    -> 'HB');
Query OK, 1 row affected (0.01 sec)

mysql> SELECT COUNT(*) FROM CARS;
+-----+
| COUNT(*) |
+-----+
|          8 |
+-----+
1 row in set (0.00 sec)

mysql> INSERT INTO CARS VALUES
    -> ('667', 'Patriot', '13995.00', '11000.00',
    -> 'Grille Black',
    -> 'AC, CD Changer, Power Steering, Security System',
    -> 'SUV');
Query OK, 1 row affected (0.00 sec)

mysql> 
```

Connected to zeus.ite.gmu.edu SSH2 - aes128-cbc - hmac-md5 - n 69x28 CAP NUM

TABLE: CARS

556	Prius Four	19599.00	69000.00	Sea Glass Pearl	AC, CD Changer, Power Steering, Display Audio, Security System, Leather Seats
667	Patriot	13995.00	11000.00	Grille Black	AC, CD Changer, Power Steering, Security System
789	Range Rover	95670.00	0.00	Orkney Grey	AC, CD Changer, Power Steering, Security System, In-Built GPS, Leather Seats

9 rows in set (0.00 sec)

```
mysql> SELECT * FROM CARS;
```

CAR_ID	CAR_NAME	CAR_PRICE	CAR_MILEAGE	CAR_COLOR	CAR_FEATURES

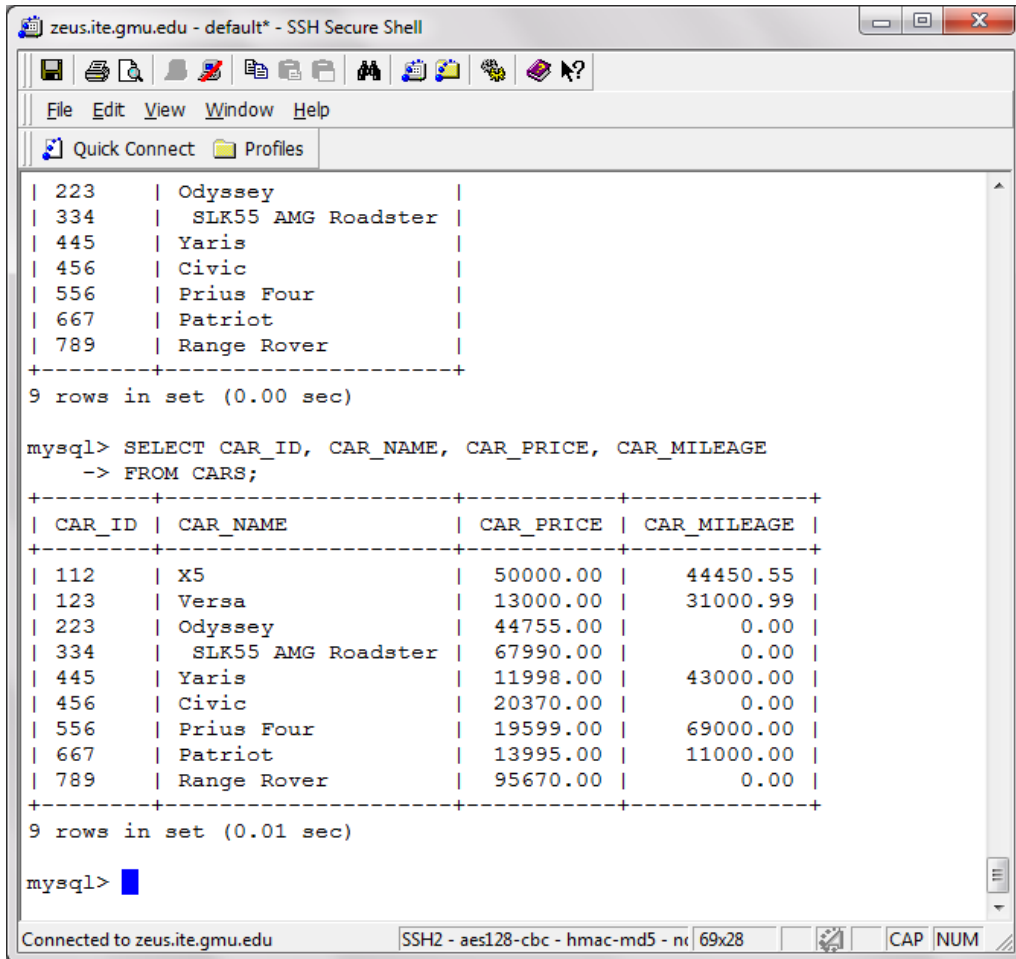
112	X5	50000.00	44450.55	Platinum Gray Metal	AC, CD Changer, Power Steering, Security System, In-Built GPS, Leather Seats
123	Versa	13000.00	31000.99	Red Alert	AC, CD Changer, Power Steering, Security System
223	Odyssey	44755.00	0.00	Dark Cherry Pearl	AC, CD Changer, Power Steering, Security System, In-Built GPS, Leather Seats
334	SLK55 AMG Roadster	67990.00	0.00	Iridium Silver	AC, CD Changer, Power Steering, In-Built GPS, Security System, Leather Seats, Manual Transmission, Automatic
445	Yaris	11998.00	43000.00	Wave Line Pearl	AC, CD Changer, Power Steering, Security System
456	Civic	20370.00	0.00	Cool Mist Metallic	AC, CD Changer, Power Steering, Security System, In-Built GPS
556	Prius Four	19599.00	69000.00	Sea Glass Pearl	AC, CD Changer, Power Steering, Display Audio, Security System, Leather Seats
667	Patriot	13995.00	11000.00	Grille Black	AC, CD Changer, Power Steering, Security System
789	Range Rover	95670.00	0.00	Orkney Grey	AC, CD Changer, Power Steering, Security System, In-Built GPS, Leather Seats

9 rows in set (0.00 sec)

Connected to zeus.ite.gmu.edu

SSH2 - aes128-cbc - hmac-md5 - n: 148x35

Displaying **CAR_ID**, **CAR_NAME**, **CAR_PRICE** and **CAR_MILEAGE** from the table **CARS**



The screenshot shows an SSH Secure Shell window titled "zeus.ite.gmu.edu - default* - SSH Secure Shell". The window contains a terminal session with a MySQL query and its results. The query is "SELECT CAR_ID, CAR_NAME, CAR_PRICE, CAR_MILEAGE FROM CARS;". The results are displayed in a table format with 9 rows. The first row is "112 | X5 | 50000.00 | 44450.55". The second row is "123 | Versa | 13000.00 | 31000.99". The third row is "223 | Odyssey | 44755.00 | 0.00". The fourth row is "334 | SLK55 AMG Roadster | 67990.00 | 0.00". The fifth row is "445 | Yaris | 11998.00 | 43000.00". The sixth row is "456 | Civic | 20370.00 | 0.00". The seventh row is "556 | Prius Four | 19599.00 | 69000.00". The eighth row is "667 | Patriot | 13995.00 | 11000.00". The ninth row is "789 | Range Rover | 95670.00 | 0.00".

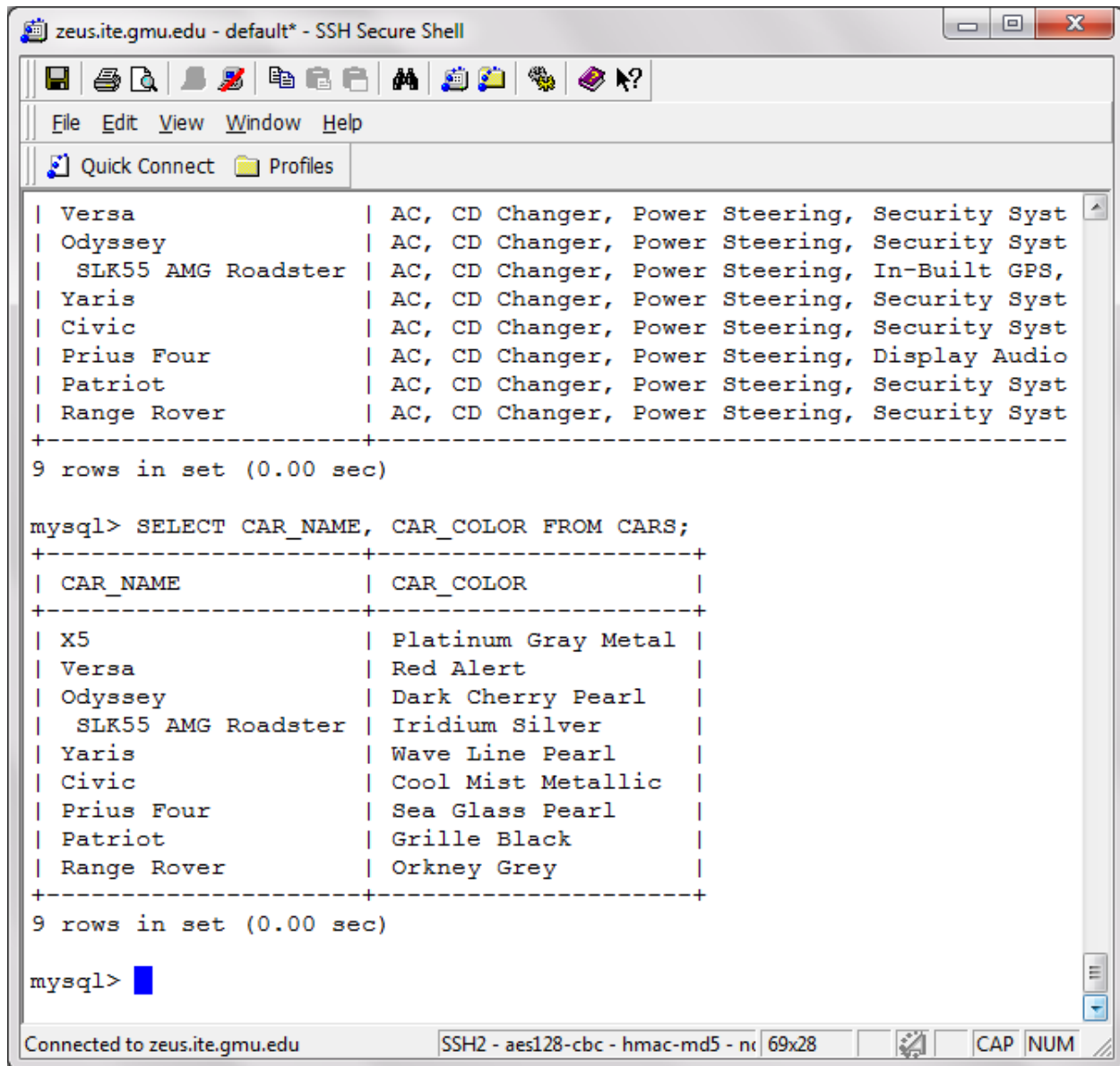
```
zeus.ite.gmu.edu - default* - SSH Secure Shell
File Edit View Window Help
Quick Connect Profiles
+-----+
| 223 | Odyssey |
| 334 | SLK55 AMG Roadster |
| 445 | Yaris |
| 456 | Civic |
| 556 | Prius Four |
| 667 | Patriot |
| 789 | Range Rover |
+-----+
9 rows in set (0.00 sec)

mysql> SELECT CAR_ID, CAR_NAME, CAR_PRICE, CAR_MILEAGE
-> FROM CARS;
+-----+-----+-----+-----+
| CAR_ID | CAR_NAME | CAR_PRICE | CAR_MILEAGE |
+-----+-----+-----+-----+
| 112 | X5 | 50000.00 | 44450.55 |
| 123 | Versa | 13000.00 | 31000.99 |
| 223 | Odyssey | 44755.00 | 0.00 |
| 334 | SLK55 AMG Roadster | 67990.00 | 0.00 |
| 445 | Yaris | 11998.00 | 43000.00 |
| 456 | Civic | 20370.00 | 0.00 |
| 556 | Prius Four | 19599.00 | 69000.00 |
| 667 | Patriot | 13995.00 | 11000.00 |
| 789 | Range Rover | 95670.00 | 0.00 |
+-----+-----+-----+-----+
9 rows in set (0.01 sec)

mysql>
```

Connected to zeus.ite.gmu.edu SSH2 - aes128-cbc - hmac-md5 - n 69x28 CAP NUM

Displaying **CAR_NAME**, and **CAR_COLOR** from the table **CARS**



The screenshot shows an SSH Secure Shell window titled "zeus.ite.gmu.edu - default* - SSH Secure Shell". The window contains a terminal session where a MySQL query has been executed. The query is "SELECT CAR_NAME, CAR_COLOR FROM CARS;". The result is displayed as a table with two columns: CAR_NAME and CAR_COLOR. The table lists 9 rows of data. The status bar at the bottom indicates the connection is to zeus.ite.gmu.edu using SSH2 with aes128-cbc - hmac-md5 - n cipher and 69x28 font. The status bar also shows "CAP NUM".

```
zeus.ite.gmu.edu - default* - SSH Secure Shell
File Edit View Window Help
Quick Connect Profiles
| Versa | AC, CD Changer, Power Steering, Security Syst
| Odyssey | AC, CD Changer, Power Steering, Security Syst
| SLK55 AMG Roadster | AC, CD Changer, Power Steering, In-Built GPS,
| Yaris | AC, CD Changer, Power Steering, Security Syst
| Civic | AC, CD Changer, Power Steering, Security Syst
| Prius Four | AC, CD Changer, Power Steering, Display Audio
| Patriot | AC, CD Changer, Power Steering, Security Syst
| Range Rover | AC, CD Changer, Power Steering, Security Syst
+-----+
9 rows in set (0.00 sec)

mysql> SELECT CAR_NAME, CAR_COLOR FROM CARS;
+-----+-----+
| CAR_NAME | CAR_COLOR |
+-----+-----+
| X5 | Platinum Gray Metal |
| Versa | Red Alert |
| Odyssey | Dark Cherry Pearl |
| SLK55 AMG Roadster | Iridium Silver |
| Yaris | Wave Line Pearl |
| Civic | Cool Mist Metallic |
| Prius Four | Sea Glass Pearl |
| Patriot | Grille Black |
| Range Rover | Orkney Grey |
+-----+-----+
9 rows in set (0.00 sec)

mysql> 
```

Connected to zeus.ite.gmu.edu SSH2 - aes128-cbc - hmac-md5 - n 69x28 CAP NUM

Displaying **CAR_NAME** and **CAR_FEATURES** from the table **CARS**

```
zeus.ite.gmu.edu - default* - SSH Secure Shell
File Edit View Window Help
Quick Connect Profiles

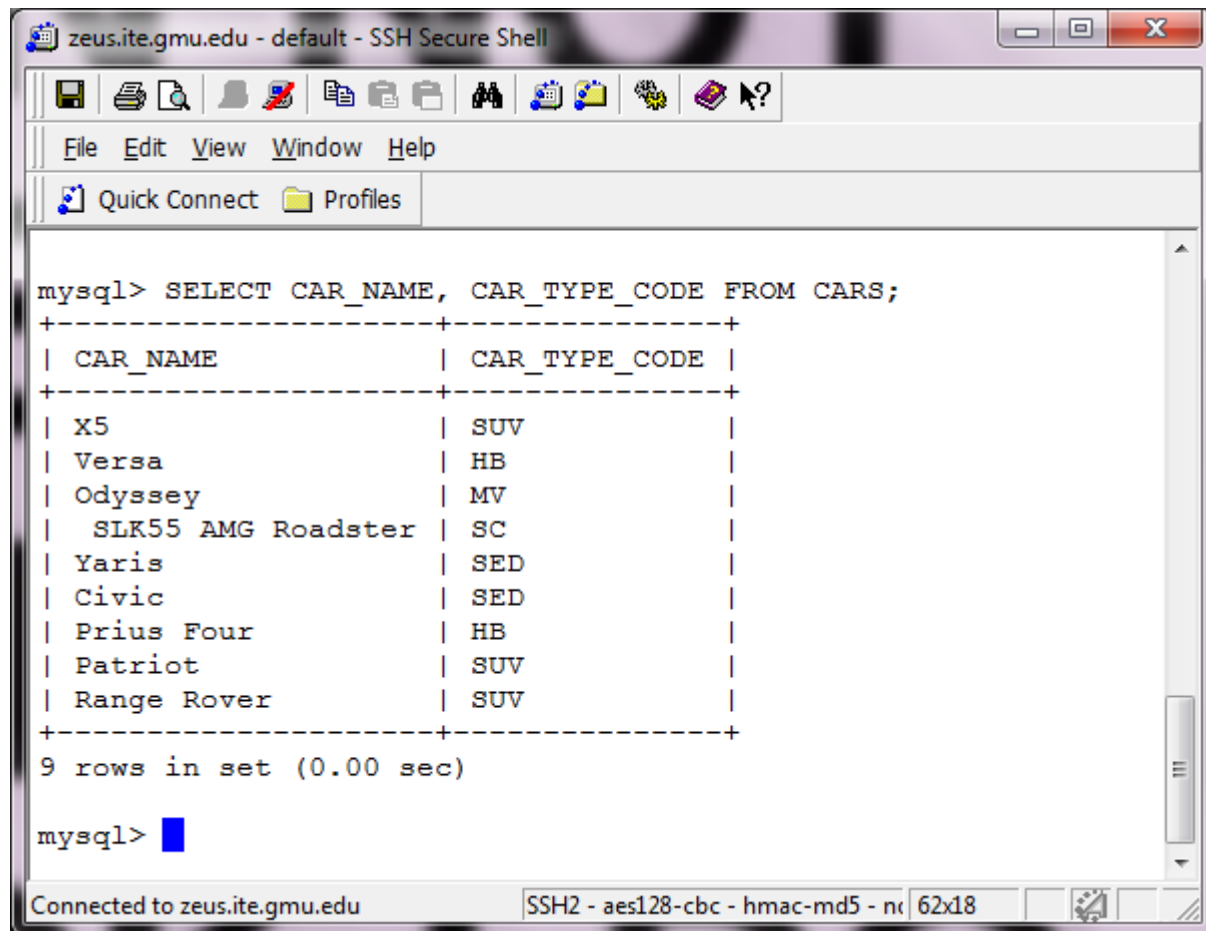
+-----+
9 rows in set (0.00 sec)

mysql> SELECT CAR_FEATURES FROM CARS;
+-----+
| CAR_FEATURES |
+-----+
| AC, CD Changer, Power Steering, Security System, In-Built GPS, Leather Seats |
| AC, CD Changer, Power Steering, Security System |
| AC, CD Changer, Power Steering, Security System, In-Built GPS, Leather Seats |
| AC, CD Changer, Power Steering, In-Built GPS, Security System, Leather Seats, Manual Transmission, A |
| AC, CD Changer, Power Steering, Security System |
| AC, CD Changer, Power Steering, Security System, In-Built GPS |
| AC, CD Changer, Power Steering, Display Audio, Security System, Leather Seats |
| AC, CD Changer, Power Steering, Security System |
| AC, CD Changer, Power Steering, Security System, In-Built GPS, Leather Seats |
+-----+
9 rows in set (0.00 sec)

mysql> SELECT CAR_NAME, CAR_FEATURES FROM CARS;
+-----+
| CAR_NAME | CAR_FEATURES |
+-----+
| X5 | AC, CD Changer, Power Steering, Security System, In-Built GPS, Leather Seats |
| Versa | AC, CD Changer, Power Steering, Security System |
| Odyssey | AC, CD Changer, Power Steering, Security System, In-Built GPS, Leather Seats |
| SLK55 AMG Roadster | AC, CD Changer, Power Steering, In-Built GPS, Security System, Leather Seats, Manual Transmission, A |
| Yaris | AC, CD Changer, Power Steering, Security System |
| Civic | AC, CD Changer, Power Steering, Security System, In-Built GPS |
| Prius Four | AC, CD Changer, Power Steering, Display Audio, Security System, Leather Seats |
| Patriot | AC, CD Changer, Power Steering, Security System |
| Range Rover | AC, CD Changer, Power Steering, Security System, In-Built GPS, Leather Seats |
+-----+
9 rows in set (0.00 sec)

Connected to zeus.ite.gmu.edu
SSH2 - aes128-cbc - hmac-md5 - n(148x35) CAP NUM
```

Displaying **CAR_NAME**, and **CAR_TYPE_CODE** from the table **CARS**



The screenshot shows a terminal window titled "zeus.ite.gmu.edu - default - SSH Secure Shell". The window contains a MySQL command prompt where the query "SELECT CAR_NAME, CAR_TYPE_CODE FROM CARS;" has been executed. The results are displayed in a table format with 9 rows. The status bar at the bottom indicates the connection is to zeus.ite.gmu.edu using SSH2 with aes128-cbc - hmac-md5 - n cipher and 62x18 font.

```
mysql> SELECT CAR_NAME, CAR_TYPE_CODE FROM CARS;
```

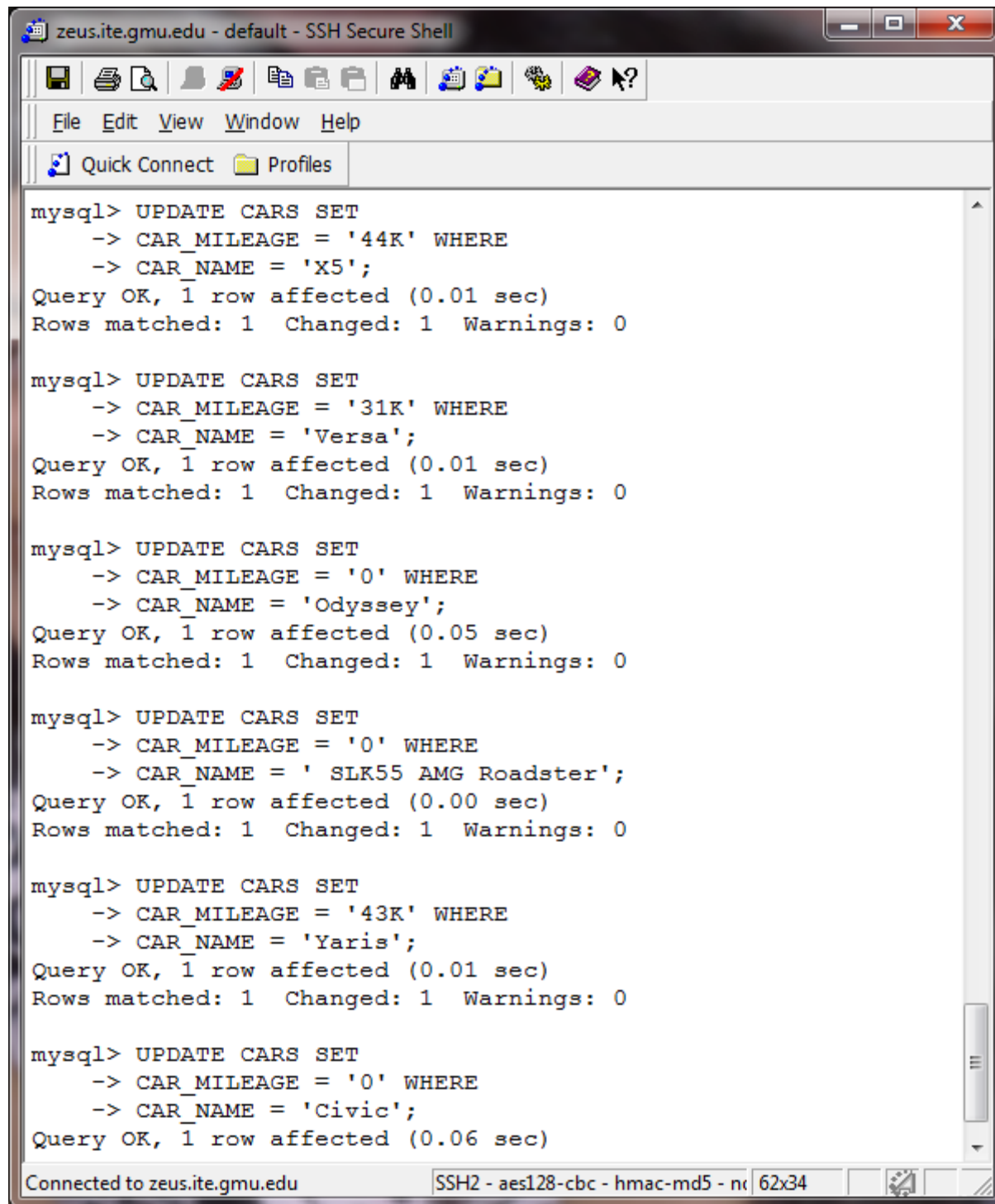
CAR_NAME	CAR_TYPE_CODE
X5	SUV
Versa	HB
Odyssey	MV
SLK55 AMG Roadster	SC
Yaris	SED
Civic	SED
Prius Four	HB
Patriot	SUV
Range Rover	SUV

```
9 rows in set (0.00 sec)
```

```
mysql>
```

Connected to zeus.ite.gmu.edu SSH2 - aes128-cbc - hmac-md5 - n 62x18

Updating **CAR_MILEAGE** values in the table **CARS**



The screenshot shows a terminal window titled "zeus.ite.gmu.edu - default - SSH Secure Shell". The window has a menu bar with "File", "Edit", "View", "Window", and "Help". Below the menu bar is a toolbar with various icons. The main area of the window displays a series of MySQL commands and their outputs. The commands are used to update the "CAR_MILEAGE" field in the "CARS" table based on the "CAR_NAME". The updates are as follows:

```
mysql> UPDATE CARS SET
-> CAR_MILEAGE = '44K' WHERE
-> CAR_NAME = 'X5';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> UPDATE CARS SET
-> CAR_MILEAGE = '31K' WHERE
-> CAR_NAME = 'Versa';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> UPDATE CARS SET
-> CAR_MILEAGE = '0' WHERE
-> CAR_NAME = 'Odyssey';
Query OK, 1 row affected (0.05 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> UPDATE CARS SET
-> CAR_MILEAGE = '0' WHERE
-> CAR_NAME = 'SLK55 AMG Roadster';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> UPDATE CARS SET
-> CAR_MILEAGE = '43K' WHERE
-> CAR_NAME = 'Yaris';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> UPDATE CARS SET
-> CAR_MILEAGE = '0' WHERE
-> CAR_NAME = 'Civic';
Query OK, 1 row affected (0.06 sec)
```

At the bottom of the window, a status bar shows "Connected to zeus.ite.gmu.edu", "SSH2 - aes128-cbc - hmac-md5 - n", and "62x34".

zeus.ite.gmu.edu - default - SSH Secure Shell

File Edit View Window Help

Quick Connect Profiles

```
mysql> UPDATE CARS SET
    -> CAR_MILEAGE = '69K' WHERE
    -> CAR_NAME = 'Prius Four';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 0

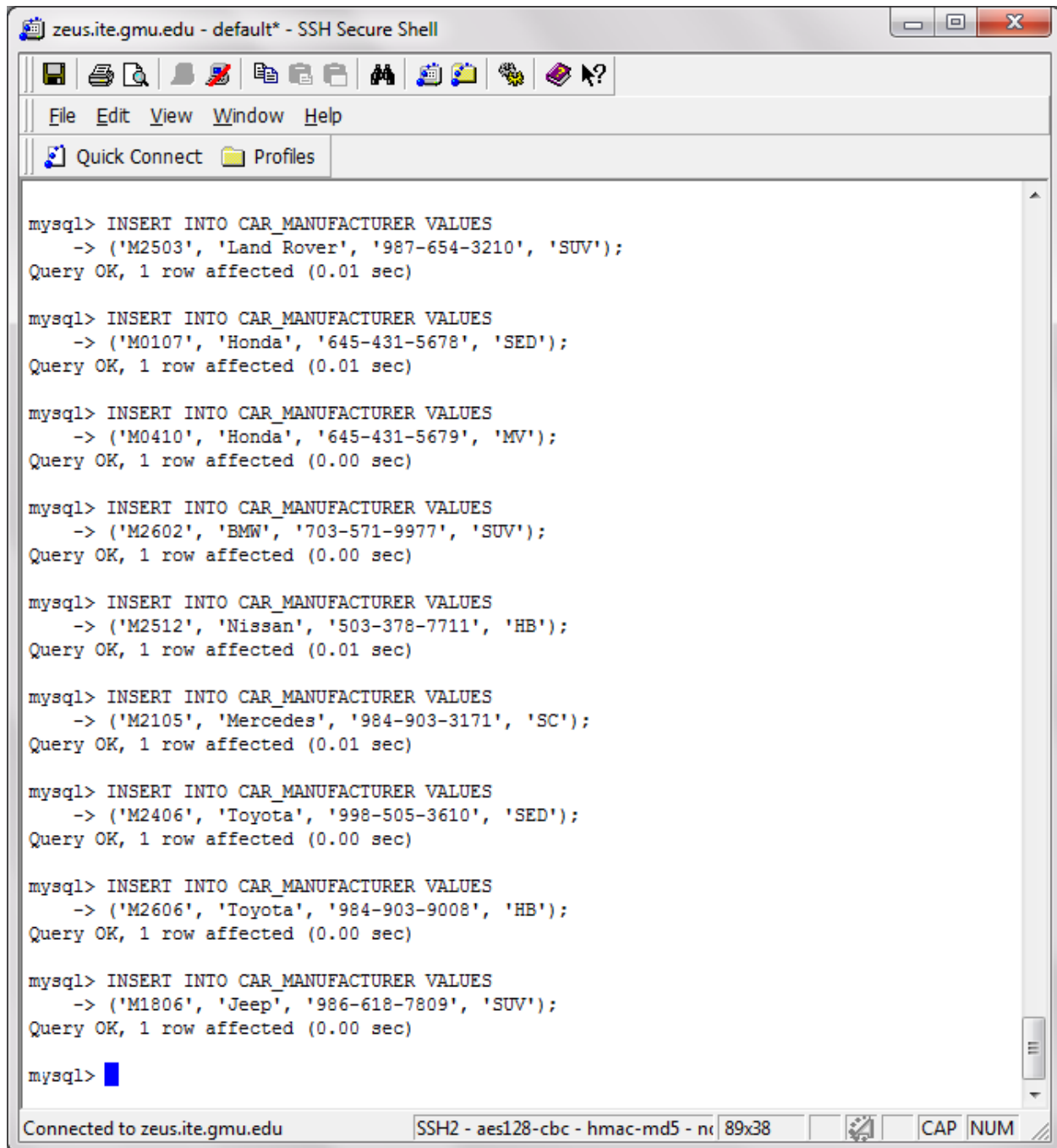
mysql> UPDATE CARS SET
    -> CAR_MILEAGE = '11K' WHERE
    -> CAR_NAME = 'Patriot';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> UPDATE CARS SET
    -> CAR_MILEAGE = '0' WHERE
    -> CAR_NAME = 'Range Rover';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> SELECT CAR_NAME, CAR_MILEAGE FROM CARS;
+-----+-----+
| CAR_NAME          | CAR_MILEAGE |
+-----+-----+
| X5                 | 44K         |
| Versa              | 31K         |
| Odyssey            | 0           |
| SLK55 AMG Roadster | 0           |
| Yaris              | 43K         |
| Civic              | 0           |
| Prius Four         | 69K         |
| Patriot            | 11K         |
| Range Rover        | 0           |
+-----+-----+
9 rows in set (0.00 sec)
```

Connected to zeus.ite.gmu.edu SSH2 - aes128-cbc - hmac-md5 - nc 62x34

Inserting records in **CAR_MANUFACTURER** table



The screenshot shows an SSH Secure Shell window titled "zeus.ite.gmu.edu - default* - SSH Secure Shell". The window has a menu bar with "File", "Edit", "View", "Window", and "Help". Below the menu bar is a toolbar with various icons. The main area displays a series of MySQL commands and their outputs. The commands are all "INSERT INTO CAR_MANUFACTURER VALUES" statements with different car details. Each command is followed by a prompt ">" and the output "Query OK, 1 row affected (0.01 sec)" or "Query OK, 1 row affected (0.00 sec)". The commands are as follows:

```
mysql> INSERT INTO CAR_MANUFACTURER VALUES
-> ('M2503', 'Land Rover', '987-654-3210', 'SUV');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO CAR_MANUFACTURER VALUES
-> ('M0107', 'Honda', '645-431-5678', 'SED');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO CAR_MANUFACTURER VALUES
-> ('M0410', 'Honda', '645-431-5679', 'MV');
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO CAR_MANUFACTURER VALUES
-> ('M2602', 'BMW', '703-571-9977', 'SUV');
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO CAR_MANUFACTURER VALUES
-> ('M2512', 'Nissan', '503-378-7711', 'HB');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO CAR_MANUFACTURER VALUES
-> ('M2105', 'Mercedes', '984-903-3171', 'SC');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO CAR_MANUFACTURER VALUES
-> ('M2406', 'Toyota', '998-505-3610', 'SED');
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO CAR_MANUFACTURER VALUES
-> ('M2606', 'Toyota', '984-903-9008', 'HB');
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO CAR_MANUFACTURER VALUES
-> ('M1806', 'Jeep', '986-618-7809', 'SUV');
Query OK, 1 row affected (0.00 sec)

mysql>
```

The status bar at the bottom of the window shows "Connected to zeus.ite.gmu.edu", "SSH2 - aes128-cbc - hmac-md5 - n", "89x38", and "CAP NUM".


```
mysql> UPDATE CAR_MANUFACTURER SET CAR_ID = '112' WHERE CAR_MAN_ID = 'M2602';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> UPDATE CAR_MANUFACTURER SET CAR_ID = '123' WHERE CAR_MAN_ID = 'M2512';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> UPDATE CAR_MANUFACTURER SET CAR_ID = '223' WHERE CAR_MAN_ID = 'M0410';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> UPDATE CAR_MANUFACTURER SET CAR_ID = '334' WHERE CAR_MAN_ID = 'M2105';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> UPDATE CAR_MANUFACTURER SET CAR_ID = '445' WHERE CAR_MAN_ID = 'M2406';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> UPDATE CAR_MANUFACTURER SET CAR_ID = '456' WHERE CAR_MAN_ID = 'M0107';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> UPDATE CAR_MANUFACTURER SET CAR_ID = '556' WHERE CAR_MAN_ID = 'M2606';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 0

Connected to zeus.ite.gmu.edu      SSH2 - aes128-cbc - hmac-md5 - nc 73x34  CAP NUM
```

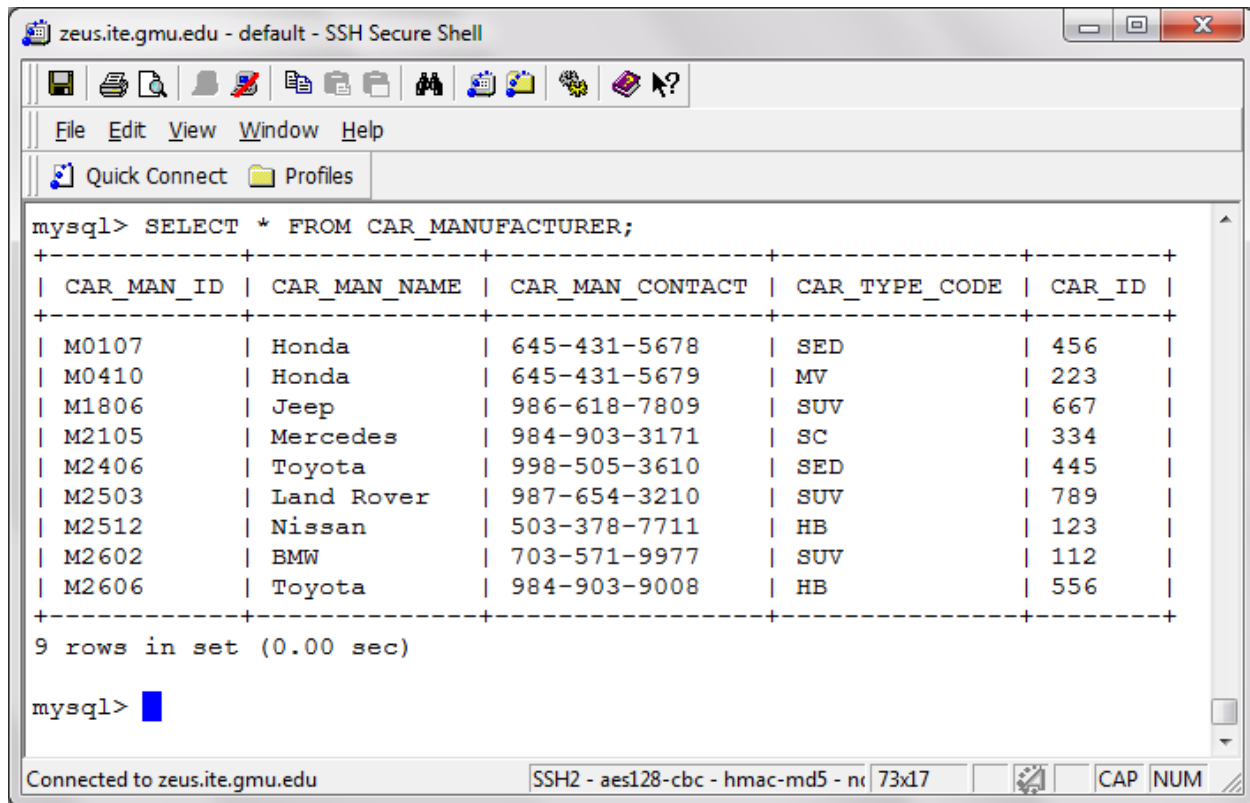
```
mysql> UPDATE CAR_MANUFACTURER SET CAR_ID = '667' WHERE CAR_MAN_ID = 'M1806';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> UPDATE CAR_MANUFACTURER SET CAR_ID = '789' WHERE CAR_MAN_ID = 'M2503';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> █

Connected to zeus.ite.gmu.edu      SSH2 - aes128-cbc - hmac-md5 - nc 73x11  CAP NUM
```

Table: **CAR_MANUFACTURER**



The screenshot shows a terminal window titled "zeus.ite.gmu.edu - default - SSH Secure Shell". The terminal displays a MySQL command prompt where the user has entered the command "mysql> SELECT * FROM CAR_MANUFACTURER;". The output is a table with 5 columns: CAR_MAN_ID, CAR_MAN_NAME, CAR_MAN_CONTACT, CAR_TYPE_CODE, and CAR_ID. There are 9 rows of data. Below the table, it says "9 rows in set (0.00 sec)". The terminal window also shows a menu bar with "File", "Edit", "View", "Window", and "Help", and a toolbar with various icons. The status bar at the bottom indicates "Connected to zeus.ite.gmu.edu" and "SSH2 - aes128-cbc - hmac-md5 - nc 73x17".

```
mysql> SELECT * FROM CAR_MANUFACTURER;
```

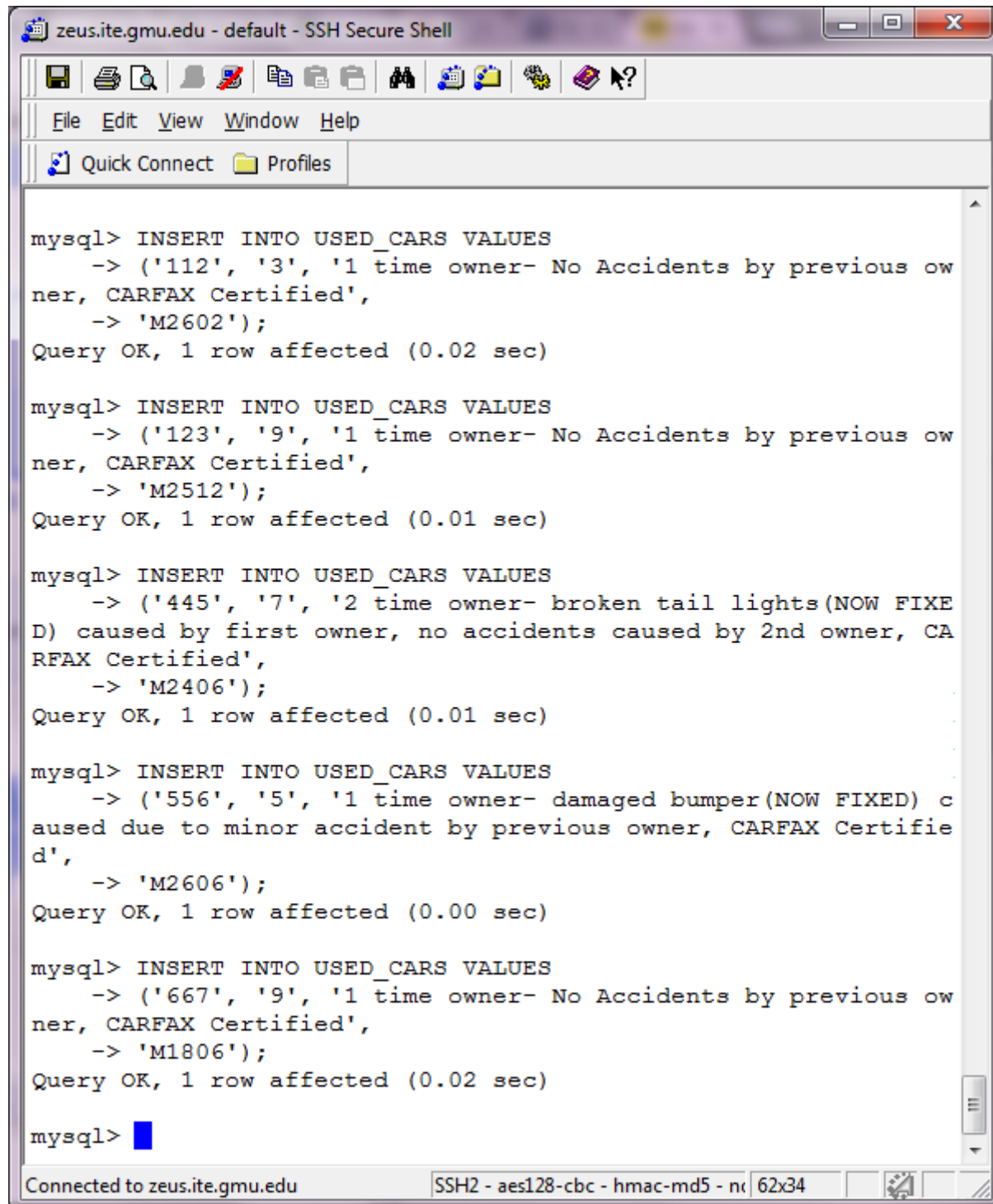
CAR_MAN_ID	CAR_MAN_NAME	CAR_MAN_CONTACT	CAR_TYPE_CODE	CAR_ID
M0107	Honda	645-431-5678	SED	456
M0410	Honda	645-431-5679	MV	223
M1806	Jeep	986-618-7809	SUV	667
M2105	Mercedes	984-903-3171	SC	334
M2406	Toyota	998-505-3610	SED	445
M2503	Land Rover	987-654-3210	SUV	789
M2512	Nissan	503-378-7711	HB	123
M2602	BMW	703-571-9977	SUV	112
M2606	Toyota	984-903-9008	HB	556

```
9 rows in set (0.00 sec)
```

```
mysql>
```

Connected to zeus.ite.gmu.edu SSH2 - aes128-cbc - hmac-md5 - nc 73x17 CAP NUM

Inserting records in **USED_CARS** table



The screenshot shows a terminal window titled "zeus.ite.gmu.edu - default - SSH Secure Shell". The window has a menu bar with "File", "Edit", "View", "Window", and "Help". Below the menu bar is a toolbar with various icons. The main area of the window displays a series of MySQL commands and their outputs. The commands are: 1. `mysql> INSERT INTO USED_CARS VALUES -> ('112', '3', '1 time owner- No Accidents by previous owner, CARFAX Certified', -> 'M2602');` followed by "Query OK, 1 row affected (0.02 sec)". 2. `mysql> INSERT INTO USED_CARS VALUES -> ('123', '9', '1 time owner- No Accidents by previous owner, CARFAX Certified', -> 'M2512');` followed by "Query OK, 1 row affected (0.01 sec)". 3. `mysql> INSERT INTO USED_CARS VALUES -> ('445', '7', '2 time owner- broken tail lights(NOW FIXED) caused by first owner, no accidents caused by 2nd owner, CARFAX Certified', -> 'M2406');` followed by "Query OK, 1 row affected (0.01 sec)". 4. `mysql> INSERT INTO USED_CARS VALUES -> ('556', '5', '1 time owner- damaged bumper(NOW FIXED) caused due to minor accident by previous owner, CARFAX Certified', -> 'M2606');` followed by "Query OK, 1 row affected (0.00 sec)". 5. `mysql> INSERT INTO USED_CARS VALUES -> ('667', '9', '1 time owner- No Accidents by previous owner, CARFAX Certified', -> 'M1806');` followed by "Query OK, 1 row affected (0.02 sec)". The prompt `mysql>` is followed by a blue cursor. At the bottom of the window, a status bar shows "Connected to zeus.ite.gmu.edu", "SSH2 - aes128-cbc - hmac-md5 - n", and "62x34".

```
mysql> INSERT INTO USED_CARS VALUES
-> ('112', '3', '1 time owner- No Accidents by previous owner, CARFAX Certified',
-> 'M2602');
Query OK, 1 row affected (0.02 sec)

mysql> INSERT INTO USED_CARS VALUES
-> ('123', '9', '1 time owner- No Accidents by previous owner, CARFAX Certified',
-> 'M2512');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO USED_CARS VALUES
-> ('445', '7', '2 time owner- broken tail lights(NOW FIXED) caused by first owner, no accidents caused by 2nd owner, CARFAX Certified',
-> 'M2406');
Query OK, 1 row affected (0.01 sec)

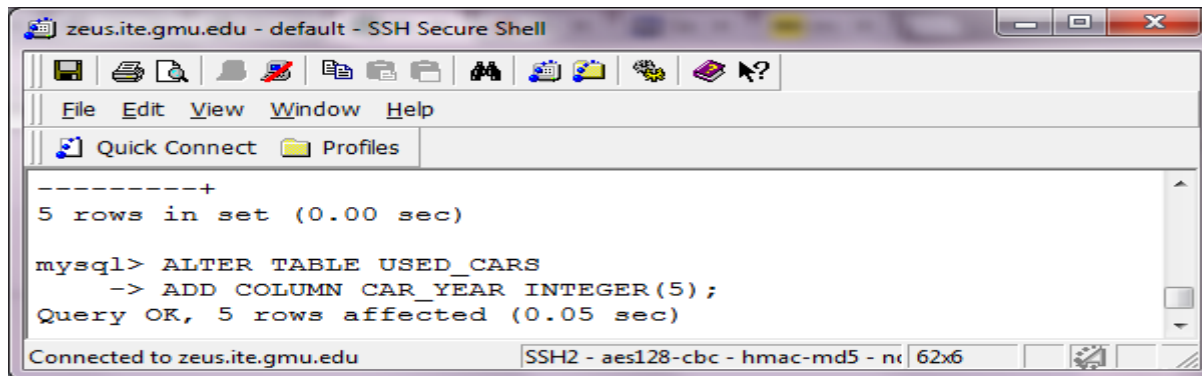
mysql> INSERT INTO USED_CARS VALUES
-> ('556', '5', '1 time owner- damaged bumper(NOW FIXED) caused due to minor accident by previous owner, CARFAX Certified',
-> 'M2606');
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO USED_CARS VALUES
-> ('667', '9', '1 time owner- No Accidents by previous owner, CARFAX Certified',
-> 'M1806');
Query OK, 1 row affected (0.02 sec)

mysql>
```

Connected to zeus.ite.gmu.edu SSH2 - aes128-cbc - hmac-md5 - n 62x34

Adding column for year the car was manufactured called **CAR_YEAR** to **USED_CARS** table



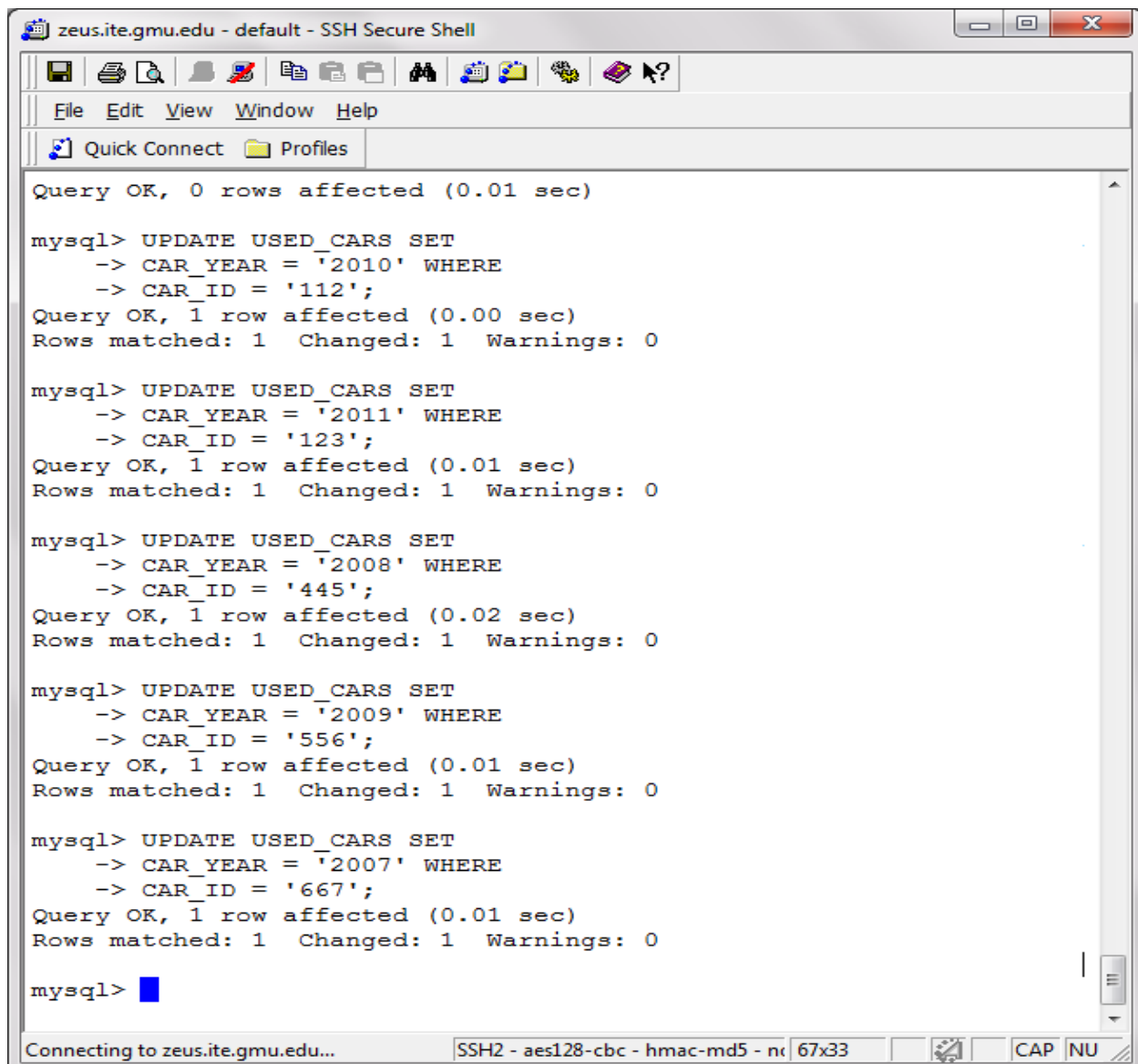
```
zeus.ite.gmu.edu - default - SSH Secure Shell
File Edit View Window Help
Quick Connect Profiles

-----+
5 rows in set (0.00 sec)

mysql> ALTER TABLE USED_CARS
-> ADD COLUMN CAR_YEAR INTEGER(5);
Query OK, 5 rows affected (0.05 sec)

Connected to zeus.ite.gmu.edu    SSH2 - aes128-cbc - hmac-md5 - nc 62x6
```

Inserting records to **CAR_YEAR** column in **CARS** table



```
zeus.ite.gmu.edu - default - SSH Secure Shell
File Edit View Window Help
Quick Connect Profiles

Query OK, 0 rows affected (0.01 sec)

mysql> UPDATE USED_CARS SET
-> CAR_YEAR = '2010' WHERE
-> CAR_ID = '112';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> UPDATE USED_CARS SET
-> CAR_YEAR = '2011' WHERE
-> CAR_ID = '123';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> UPDATE USED_CARS SET
-> CAR_YEAR = '2008' WHERE
-> CAR_ID = '445';
Query OK, 1 row affected (0.02 sec)
Rows matched: 1  Changed: 1  Warnings: 0

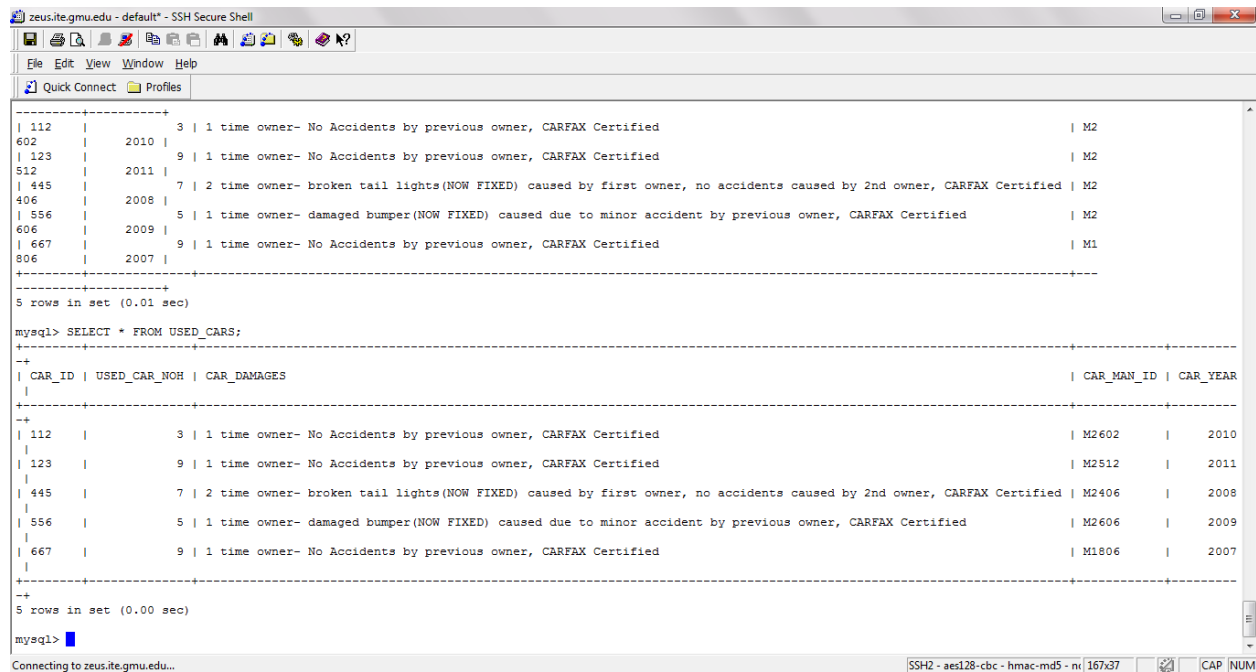
mysql> UPDATE USED_CARS SET
-> CAR_YEAR = '2009' WHERE
-> CAR_ID = '556';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> UPDATE USED_CARS SET
-> CAR_YEAR = '2007' WHERE
-> CAR_ID = '667';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> █

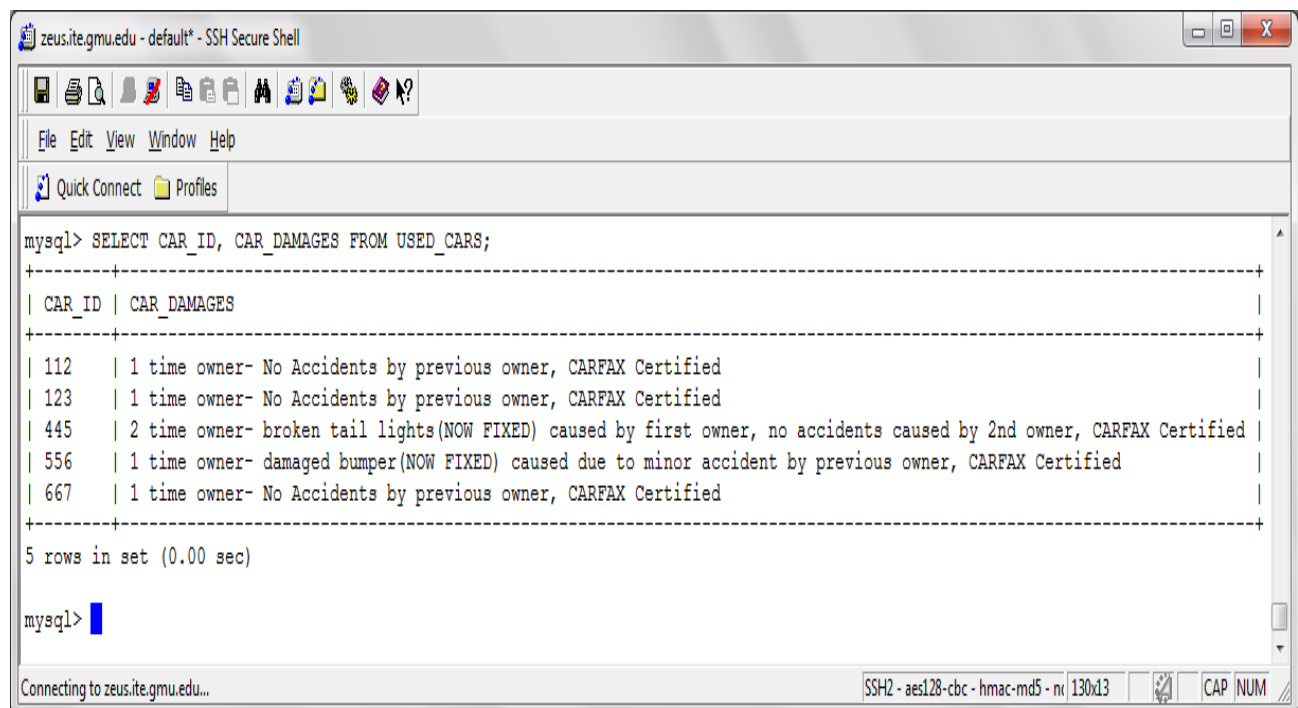
Connecting to zeus.ite.gmu.edu...    SSH2 - aes128-cbc - hmac-md5 - nc 67x33    CAP NU
```

Table: USED_CARS



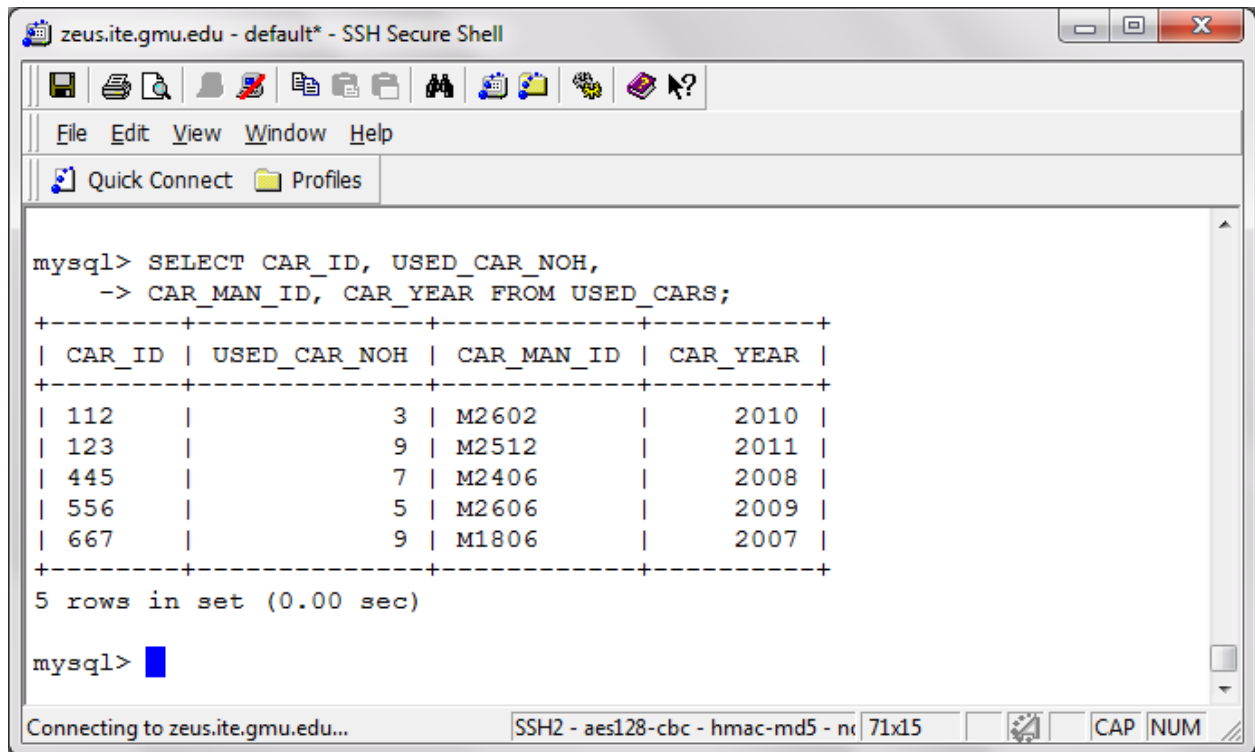
CAR_ID	USED_CAR_NOH	CAR_DAMAGES	CAR_MAN_ID	CAR_YEAR
112	3	1 time owner- No Accidents by previous owner, CARFAX Certified	M2602	2010
123	9	1 time owner- No Accidents by previous owner, CARFAX Certified	M2512	2011
445	7	2 time owner- broken tail lights(NOW FIXED) caused by first owner, no accidents caused by 2nd owner, CARFAX Certified	M2406	2008
556	5	1 time owner- damaged bumper(NOW FIXED) caused due to minor accident by previous owner, CARFAX Certified	M2606	2009
667	9	1 time owner- No Accidents by previous owner, CARFAX Certified	M1806	2007

Displaying **CAR_ID** and **CAR_DAMAGES** from **USED_CARS** table



CAR_ID	CAR_DAMAGES
112	1 time owner- No Accidents by previous owner, CARFAX Certified
123	1 time owner- No Accidents by previous owner, CARFAX Certified
445	2 time owner- broken tail lights(NOW FIXED) caused by first owner, no accidents caused by 2nd owner, CARFAX Certified
556	1 time owner- damaged bumper(NOW FIXED) caused due to minor accident by previous owner, CARFAX Certified
667	1 time owner- No Accidents by previous owner, CARFAX Certified

Displaying **CAR_ID**, **USED_CAR_NOH**, **CAR_MAN_ID**, **CAR_YEAR** from **USED_CARS** table



The screenshot shows an SSH Secure Shell window titled "zeus.ite.gmu.edu - default* - SSH Secure Shell". The window has a menu bar with "File", "Edit", "View", "Window", and "Help". Below the menu bar is a toolbar with icons for file operations and a "Quick Connect" button. The main text area displays a MySQL query and its results:

```
mysql> SELECT CAR_ID, USED_CAR_NOH,  
-> CAR_MAN_ID, CAR_YEAR FROM USED_CARS;
```

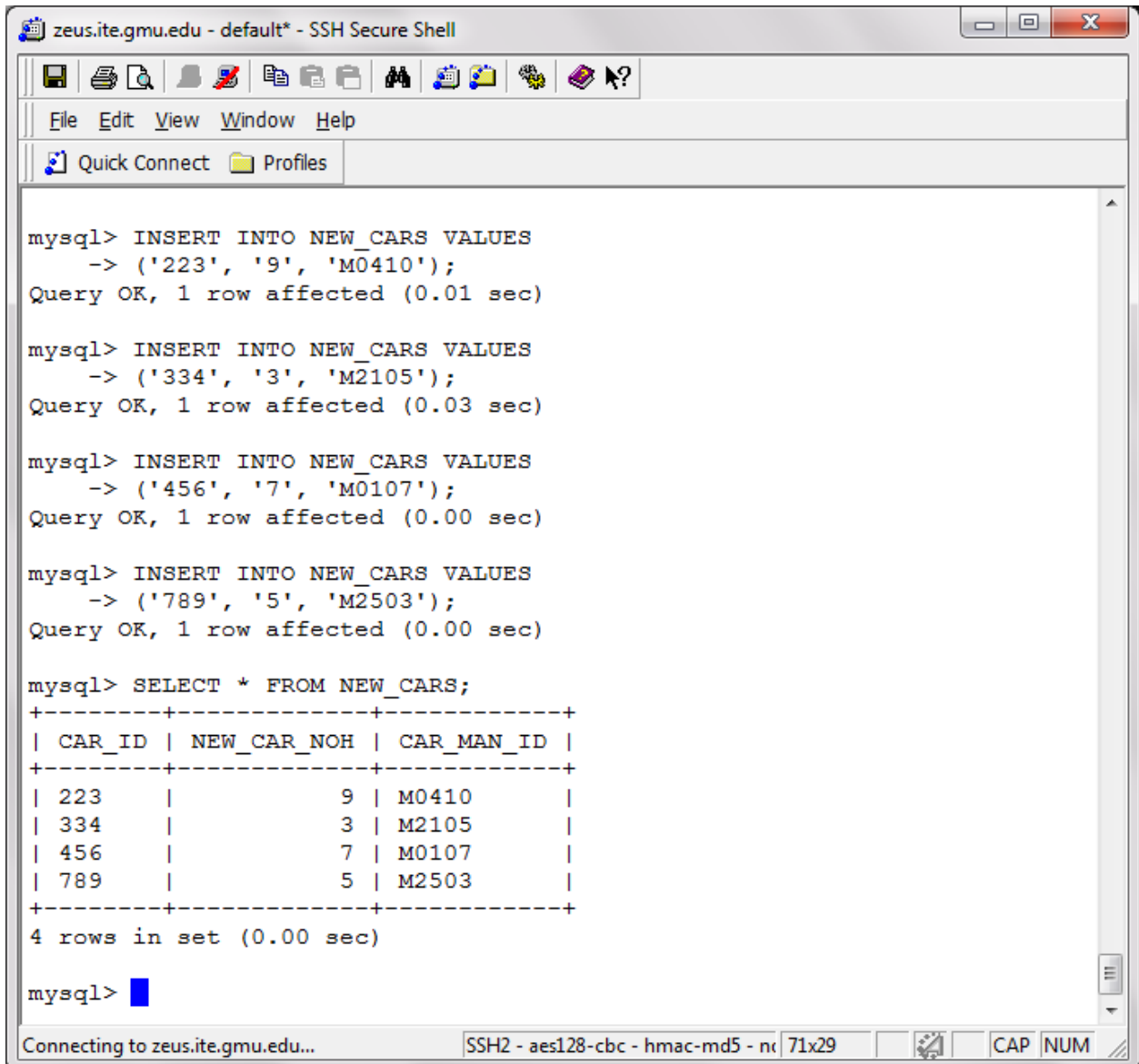
CAR_ID	USED_CAR_NOH	CAR_MAN_ID	CAR_YEAR
112	3	M2602	2010
123	9	M2512	2011
445	7	M2406	2008
556	5	M2606	2009
667	9	M1806	2007

5 rows in set (0.00 sec)

mysql>

The status bar at the bottom of the window shows "Connecting to zeus.ite.gmu.edu...", "SSH2 - aes128-cbc - hmac-md5 - n", "71x15", and "CAP NUM".

Inserting and displaying records in **NEW_CARS** table



The screenshot shows an SSH Secure Shell window titled "zeus.ite.gmu.edu - default* - SSH Secure Shell". The window contains a terminal session with MySQL commands. The commands insert four rows into the "NEW_CARS" table and then select all rows. The output shows the inserted data in a table format.

```
mysql> INSERT INTO NEW_CARS VALUES
-> ('223', '9', 'M0410');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO NEW_CARS VALUES
-> ('334', '3', 'M2105');
Query OK, 1 row affected (0.03 sec)

mysql> INSERT INTO NEW_CARS VALUES
-> ('456', '7', 'M0107');
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO NEW_CARS VALUES
-> ('789', '5', 'M2503');
Query OK, 1 row affected (0.00 sec)

mysql> SELECT * FROM NEW_CARS;
+-----+-----+-----+
| CAR_ID | NEW_CAR_NOH | CAR_MAN_ID |
+-----+-----+-----+
| 223    |          9 | M0410      |
| 334    |          3 | M2105      |
| 456    |          7 | M0107      |
| 789    |          5 | M2503      |
+-----+-----+-----+
4 rows in set (0.00 sec)

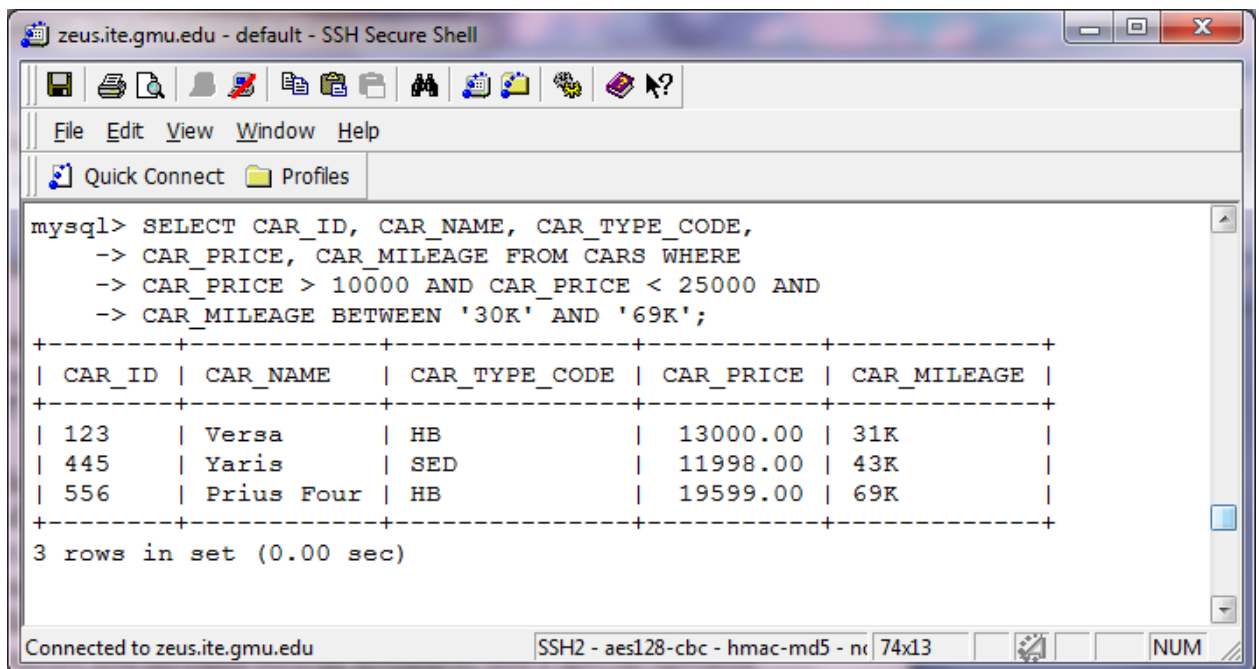
mysql>
```

At the bottom of the window, the status bar shows "Connecting to zeus.ite.gmu.edu...", "SSH2 - aes128-cbc - hmac-md5 - nc", "71x29", and "CAP NUM".

QUERYS

- a. A query that is based on two tables and includes both arithmetic and a special operator in the conditional expression.

This query will display the car id (**CAR_ID**), name of the car (**CAR_NAME**), the car type code (**CAR_TYPE_CODE**), the price of the car (**CAR_PRICE**) and the mileage of the car (**CAR_MILEAGE**) from the table **CARS**. This table displays the above with conditions that the price (**CAR_PRICE**) should be more than (>) 10000 and less than (<) 25000. This is achieved using the **arithmetic operators**. The other condition put to it is that the mileage (**CAR_MILEAGE**) should be **BETWEEN** 30K and 70K. This was achieved using the **special operator BETWEEN**.



The screenshot shows an SSH Secure Shell window titled "zeus.ite.gmu.edu - default - SSH Secure Shell". The window contains a terminal interface where a MySQL query has been executed. The query selects columns CAR_ID, CAR_NAME, CAR_TYPE_CODE, CAR_PRICE, and CAR_MILEAGE from the CARS table, filtering for cars with a price between 10000 and 25000 and mileage between 30K and 69K. The results are displayed in a table format with 3 rows.

```
mysql> SELECT CAR_ID, CAR_NAME, CAR_TYPE_CODE,
-> CAR_PRICE, CAR_MILEAGE FROM CARS WHERE
-> CAR_PRICE > 10000 AND CAR_PRICE < 25000 AND
-> CAR_MILEAGE BETWEEN '30K' AND '69K';
```

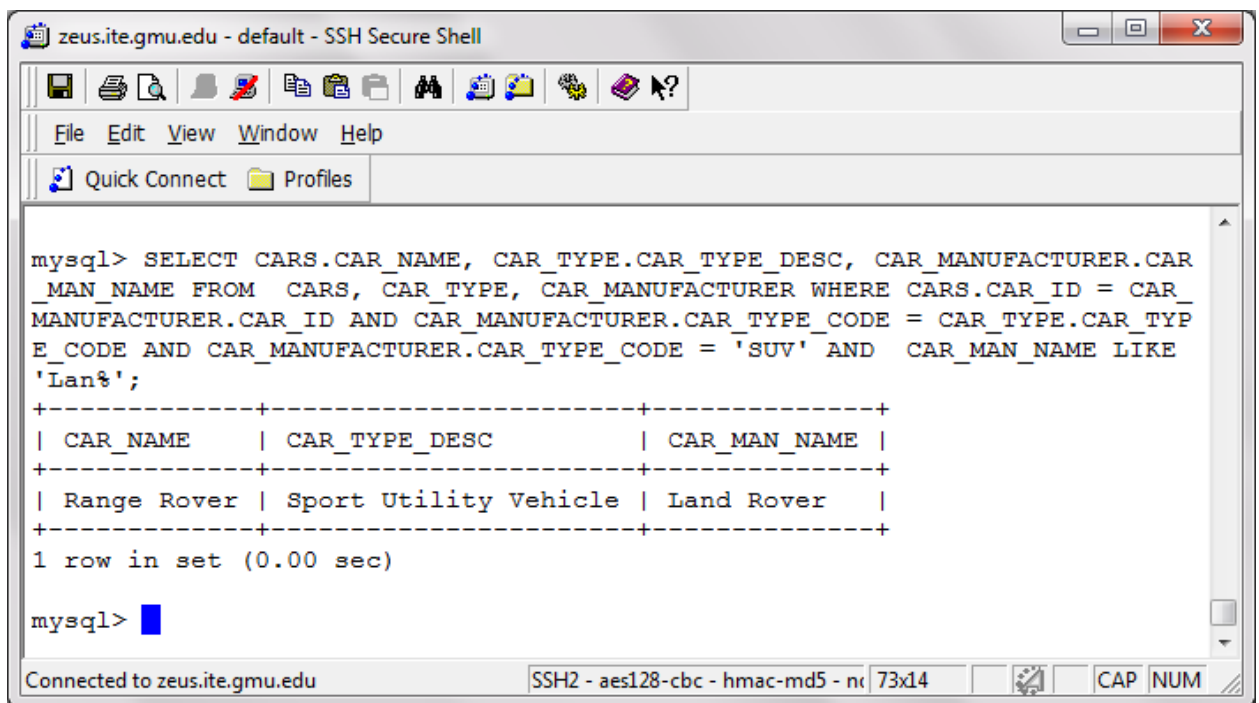
CAR_ID	CAR_NAME	CAR_TYPE_CODE	CAR_PRICE	CAR_MILEAGE
123	Versa	HB	13000.00	31K
445	Yaris	SED	11998.00	43K
556	Prius Four	HB	19599.00	69K

3 rows in set (0.00 sec)

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- b. A query that is based on more than two tables and includes both arithmetic and a special operator in the conditional expression. Both the arithmetic and the special operator must be different from the ones used in part a.

This query will display the car name (**CAR_NAME**), the description of the car (**CAR_TYPE_DESC**) and the manufacturer of the car (**CAR_MAN_NAME**) from the **CARS**, **CAR_TYPE** and **CAR_MANUFACTURER** table. A **WHERE** statement is used to form a **join** between the **CAR_ID** of the **CARS** table and **CAR_MANUFACTURER** table and another **join** between the **CAR_TYPE_CODE** of the **CAR_MANUFACTURER** table and the **CAR_TYPE** table. The **arithmetic operator** (**=**) is used to show which **CAR_TYPE_CODE** to pick with the **CAR_MAN_NAME** matching part of the name. This is done using the **special operator** **LIKE** followed by **%** which will match it to similar name.



The screenshot shows an SSH Secure Shell window titled "zeus.ite.gmu.edu - default - SSH Secure Shell". The window contains a terminal interface with a MySQL prompt. The following SQL query is entered and executed:

```
mysql> SELECT CARS.CAR_NAME, CAR_TYPE.CAR_TYPE_DESC, CAR_MANUFACTURER.CAR_MAN_NAME FROM CARS, CAR_TYPE, CAR_MANUFACTURER WHERE CARS.CAR_ID = CAR_MANUFACTURER.CAR_ID AND CAR_MANUFACTURER.CAR_TYPE_CODE = CAR_TYPE.CAR_TYPE_CODE AND CAR_MANUFACTURER.CAR_TYPE_CODE = 'SUV' AND CAR_MAN_NAME LIKE 'Lan%';
```

The results are displayed in a table format:

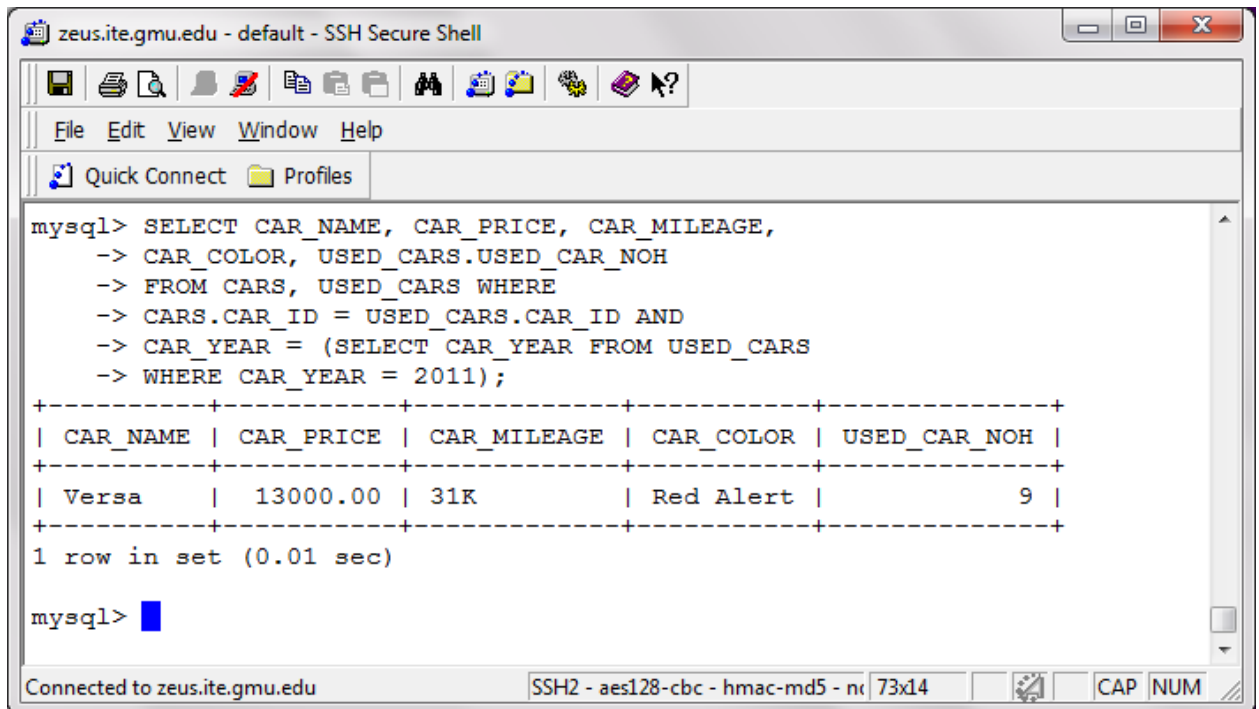
CAR_NAME	CAR_TYPE_DESC	CAR_MAN_NAME
Range Rover	Sport Utility Vehicle	Land Rover

Below the table, the output indicates "1 row in set (0.00 sec)". The prompt "mysql>" is shown again with a cursor.

The status bar at the bottom of the window shows "Connected to zeus.ite.gmu.edu", "SSH2 - aes128-cbc - hmac-md5 - n", "73x14", and "CAP NUM".

- c. A query that includes a sub-query.

This query will display the car name (**CAR_NAME**), the price of the car (**CAR_PRICE**), the mileage of the car (**CAR_MILEAGE**), the color of the car (**CAR_COLOR**) and the number of used cars (**USED_CAR_NOH**) from the **CARS** table and the **USED_CARS** table. There is **join** between the **CARS** table and the **USED_CARS** table with the **common, foreign key column CAR_ID**. This query will display the above with regards to the car year (**CAR_YEAR**) for which a **sub-query** is used to check of cars in the year 2011.



The screenshot shows an SSH Secure Shell window titled "zeus.ite.gmu.edu - default - SSH Secure Shell". The window contains a terminal session with a MySQL query and its results. The query is a JOIN between the CARS and USED_CARS tables, filtered by CAR_YEAR = 2011. The results show one row for a car named "Versa" with a price of 13000.00, mileage of 31K, color of Red Alert, and 9 used cars.

```
mysql> SELECT CAR_NAME, CAR_PRICE, CAR_MILEAGE,
-> CAR_COLOR, USED_CARS.USED_CAR_NOH
-> FROM CARS, USED_CARS WHERE
-> CARS.CAR_ID = USED_CARS.CAR_ID AND
-> CAR_YEAR = (SELECT CAR_YEAR FROM USED_CARS
-> WHERE CAR_YEAR = 2011);
```

CAR_NAME	CAR_PRICE	CAR_MILEAGE	CAR_COLOR	USED_CAR_NOH
Versa	13000.00	31K	Red Alert	9

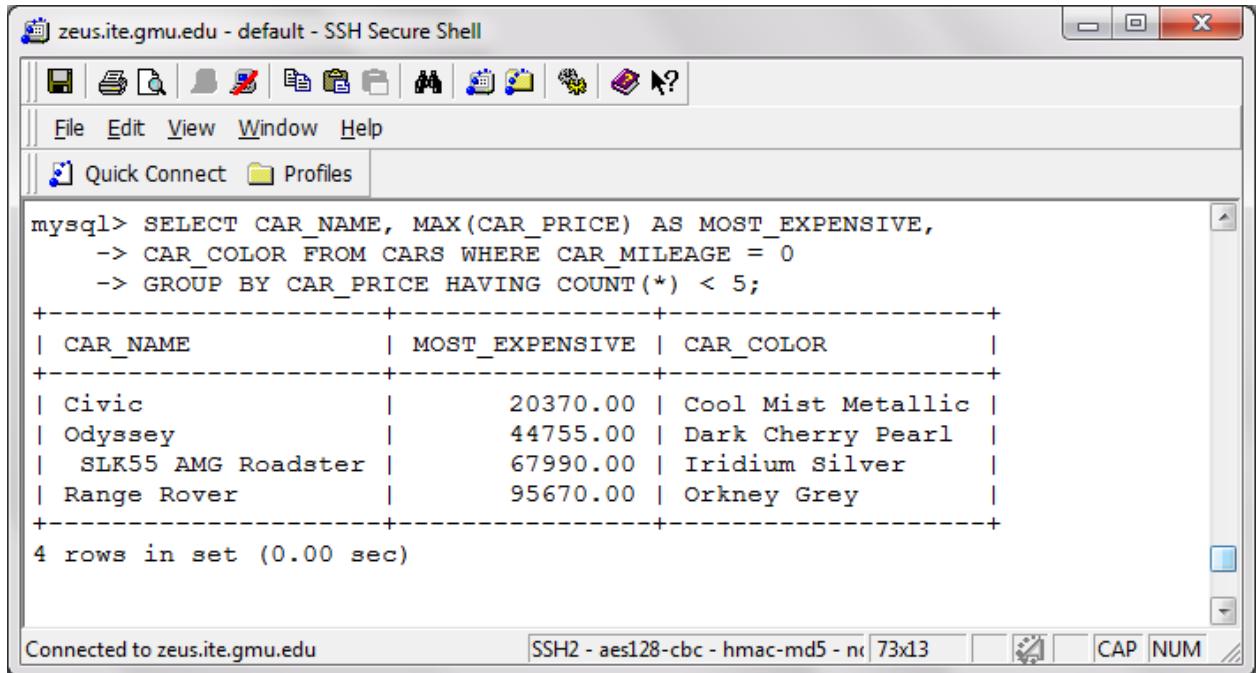
1 row in set (0.01 sec)

```
mysql>
```

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- d. A query that contains the GROUP BY clause, one of the aggregate functions, the WHERE statement, and the HAVING operator.

This query will display the name of the car (**CAR_NAME**), the most expensive cars using the aggregate function **MAX (CAR_PRICE)** and is renamed to **MOST_EXPENSIVE** and the color of the car (**CAR_COLOR**) from the **CARS** table **WHERE** the mileage of the car (**CAR_MILEAGE**) is **0**. The table is displayed from the **least expensive to the most expensive** car using the **GROUP BY** clause which is further narrowed down with the **HAVING** operator which will only display the groups containing less than 5 rows.



The screenshot shows an SSH Secure Shell window titled "zeus.ite.gmu.edu - default - SSH Secure Shell". The window contains a terminal with a MySQL query and its results. The query is: `mysql> SELECT CAR_NAME, MAX(CAR_PRICE) AS MOST_EXPENSIVE, CAR_COLOR FROM CARS WHERE CAR_MILEAGE = 0 GROUP BY CAR_PRICE HAVING COUNT(*) < 5;`. The results are displayed in a table with 4 rows. The table has columns: CAR_NAME, MOST_EXPENSIVE, and CAR_COLOR. The rows are: Civic (20370.00, Cool Mist Metallic), Odyssey (44755.00, Dark Cherry Pearl), SLK55 AMG Roadster (67990.00, Iridium Silver), and Range Rover (95670.00, Orkney Grey). The terminal also shows "4 rows in set (0.00 sec)".

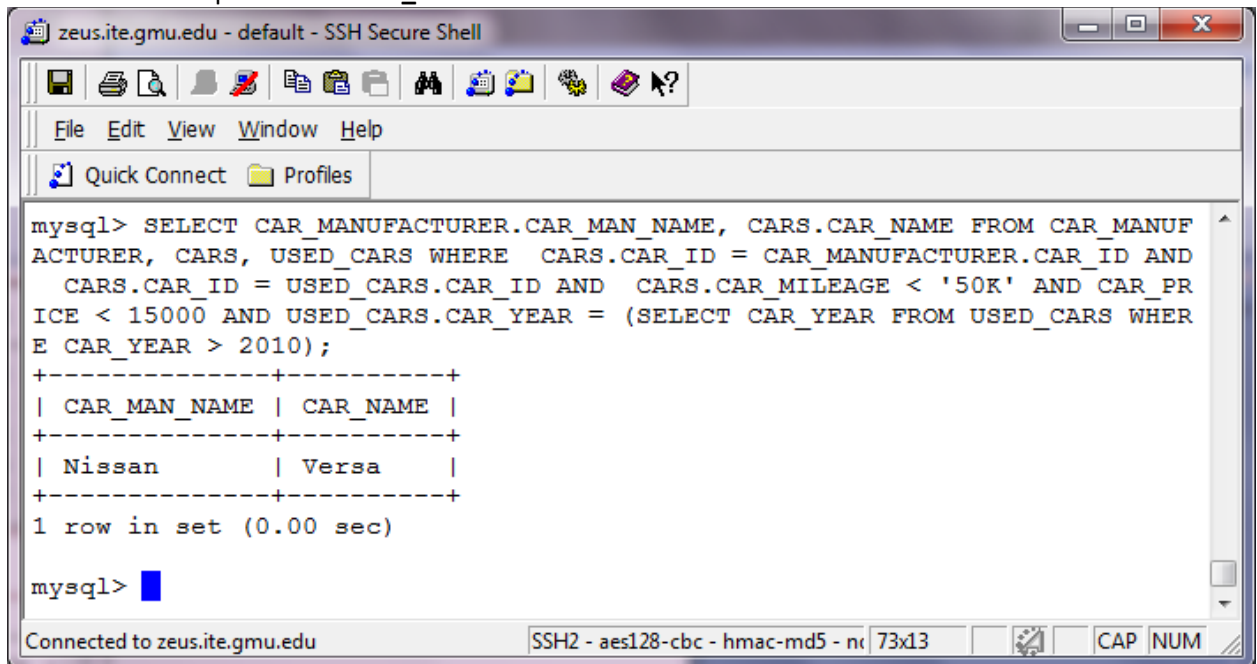
```
mysql> SELECT CAR_NAME, MAX(CAR_PRICE) AS MOST_EXPENSIVE,
-> CAR_COLOR FROM CARS WHERE CAR_MILEAGE = 0
-> GROUP BY CAR_PRICE HAVING COUNT(*) < 5;
```

CAR_NAME	MOST_EXPENSIVE	CAR_COLOR
Civic	20370.00	Cool Mist Metallic
Odyssey	44755.00	Dark Cherry Pearl
SLK55 AMG Roadster	67990.00	Iridium Silver
Range Rover	95670.00	Orkney Grey

4 rows in set (0.00 sec)

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- e. Two additional complex queries designed by you that are different from the above. A complex query is based on two or more tables and includes either several conditions or a sub-query (or both).
1. This query will display the car manufacturer's name (**CAR_MAN_NAME**) and the name of the car (**CAR_NAME**) from the tables **CARS**, **CAR_MANUFACTURER** and **USED_CARS**, WHERE a **join** is formed between the **CAR_ID** columns in the **CARS** table and the **CAR_MANUFACTURER** table and the **CAR_ID** columns of the **CARS** table and the **USED_CARS** table. The search is narrowed by searching for cars with a mileage (**CAR_MILEAGE**) of less than (<) 50K and a price (**CAR_PRICE**) that will be less than (<) 15000. A sub-query is used to further narrow the search in the **USED_CARS** table with respect to the **CAR_YEAR**.



The screenshot shows an SSH Secure Shell window titled "zeus.ite.gmu.edu - default - SSH Secure Shell". The window contains a terminal session with a MySQL query and its output. The query is a complex JOIN query involving three tables: CAR_MANUFACTURER, CARS, and USED_CARS. It filters for cars with mileage less than 50K and price less than 15000, and further narrows the search to cars from 2010 or later. The output shows a single row for a Nissan Versa.

```
mysql> SELECT CAR_MANUFACTURER.CAR_MAN_NAME, CARS.CAR_NAME FROM CAR_MANUFACTURER, CARS, USED_CARS WHERE CARS.CAR_ID = CAR_MANUFACTURER.CAR_ID AND CARS.CAR_ID = USED_CARS.CAR_ID AND CARS.CAR_MILEAGE < '50K' AND CAR_PRICE < 15000 AND USED_CARS.CAR_YEAR = (SELECT CAR_YEAR FROM USED_CARS WHERE CAR_YEAR > 2010);
```

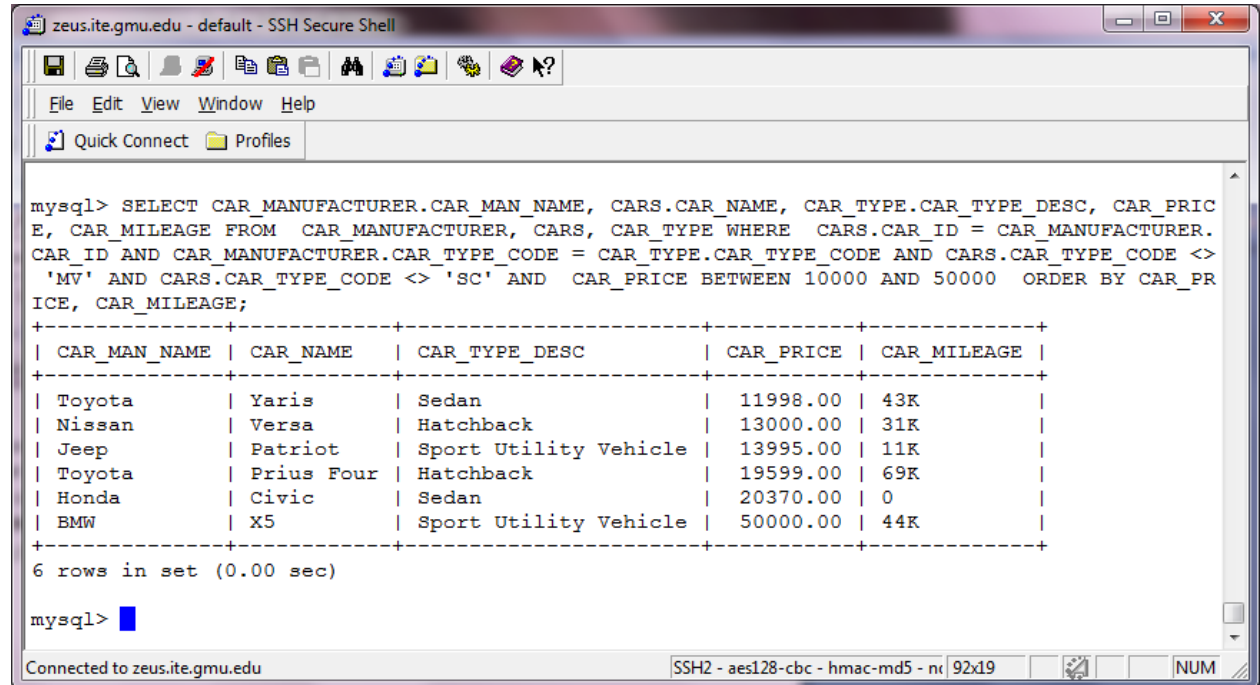
CAR_MAN_NAME	CAR_NAME
Nissan	Versa

1 row in set (0.00 sec)

```
mysql>
```

Connected to zeus.ite.gmu.edu | SSH2 - aes128-cbc - hmac-md5 - n | 73x13 | CAP NUM

2. This query will display the car manufacturer's name (**CAR_MAN_NAME**) and the name of the car (**CAR_NAME**), description of the car (**CAR_TYPE_DESC**), the price of the car (**CAR_PRICE**) and the mileage of the car (**CAR_MILEAGE**) from the tables **CARS**, **CAR_MANUFACTURER** and **CAR_TYPE**, WHERE a join is formed between the **CAR_ID** columns in the **CARS** table and the **CAR_MANUFACTURER** table and the **CAR_TYPE_CODE** columns of the **CAR_MANUFACTURER** table and the **CAR_TYPE** table. This query will display the cars that are not equal (<>) to the **CAR_TYPE_CODE**, 'MV' AND 'SC' and the price (**CAR_PRICE**) is **BETWEEN** 10000 AND 50000. This table is in **ORDER BY CAR_PRICE** and then **CAR_MILEAGE**.



The screenshot shows an SSH Secure Shell window titled "zeus.ite.gmu.edu - default - SSH Secure Shell". The window contains a MySQL command prompt with the following query and results:

```
mysql> SELECT CAR_MANUFACTURER.CAR_MAN_NAME, CARS.CAR_NAME, CAR_TYPE.CAR_TYPE_DESC, CAR_PRICE, CAR_MILEAGE FROM CAR_MANUFACTURER, CARS, CAR_TYPE WHERE CARS.CAR_ID = CAR_MANUFACTURER.CAR_ID AND CAR_MANUFACTURER.CAR_TYPE_CODE = CAR_TYPE.CAR_TYPE_CODE AND CARS.CAR_TYPE_CODE <> 'MV' AND CARS.CAR_TYPE_CODE <> 'SC' AND CAR_PRICE BETWEEN 10000 AND 50000 ORDER BY CAR_PRICE, CAR_MILEAGE;
```

CAR_MAN_NAME	CAR_NAME	CAR_TYPE_DESC	CAR_PRICE	CAR_MILEAGE
Toyota	Yaris	Sedan	11998.00	43K
Nissan	Versa	Hatchback	13000.00	31K
Jeep	Patriot	Sport Utility Vehicle	13995.00	11K
Toyota	Prius Four	Hatchback	19599.00	69K
Honda	Civic	Sedan	20370.00	0
BMW	X5	Sport Utility Vehicle	50000.00	44K

6 rows in set (0.00 sec)

```
mysql>
```

The window also shows a status bar at the bottom indicating "Connected to zeus.ite.gmu.edu" and "SSH2 - aes128-cbc - hmac-md5 - n 92x19".