```sql

--APPLICATION OF SQL IN BIG DATA ANALYTICS

CREATE DATABASE SalesData_ANDILE
use SalesData_ANDILE

/*
create a date table, Date relation with the following attributes with Date ID as the primary key:
Date ID, Year, Month
 */

CREATE TABLE Date(
DateID int primary key,
[Year] int,
[Month] varchar(20)
)

select*from Date

/*   Insert tuples of data into the Date relation:   */

insert into Date (DateID,[Year],[Month])
values
(202201, 2022, 'January'),
(202202, 2022, 'February'),
(202203, 2022, 'March'),
(202204, 2022, 'April'),
(202205, 2022, 'May'),
(202206, 2022, 'June'),
(202207, 2022, 'July'),
(202208, 2022, 'August'),
(202209, 2022, 'September'),
(202210, 2022, 'October'),
(202211, 2022, 'November'),
(202212, 2022, 'December'),
(202301, 2023, 'January'),
(202302, 2023, 'February'),
(202303, 2023, 'March'),
(202304, 2023, 'April'),
(202305, 2023, 'May'),
(202306, 2023, 'June'),
(202307, 2023, 'July'),
(202308, 2023, 'August'),
(202309, 2023, 'September'),
(202310, 2023, 'October'),
(202311, 2023, 'November'),
(202312, 2023, 'December')

```

```
49 Select*from Date
50
51 /*
52 Create the Products Table relation with the following attributes with Product ID as the
53 primary key:
54 Product Description, Product Price
55 */
56
57 create table Products (
58 ProductID int primary key,
59 ProductDescription varchar(100),
60 ProductPrice decimal(30,2)
61 )
62
63 select*from Products
64
65 /*  Insert tuples of data into the Products relation.  */
66
67 insert into Products(ProductID,ProductDescription,ProductPrice)
68 values
69 (10, 'Air Fryer', 900.00),
70 (11, 'Pressure Cooker', 1200.00),
71 (12, 'Desktop', 6600.00),
72 (13, 'Car Charger', 70.00),
73 (14, 'PS5 Gamer', 1800.00),
74 (15, 'Portable Fan', 600.00),
75 (16, 'Electric Kettle', 350.00),
76 (17, 'Fork Set', 270.00),
77 (18, 'Spoon Set', 250.00),
78 (19, 'Coffee Table', 2300.00),
79 (20, 'Dish Washer', 6800.00)
80
81 select*from Products
82
83 /*
84 Create the City relation with the following attributes with City Code as the primary
85 key:
86 City Code, and City Name.
87 */
88
89 create table City(
90 CityCode varchar(2) primary key,
91 CityName varchar(60)
92 )
93
94 select*from City
95
```

```
 96 /*  Insert tuples of data into the City relation  */
 97
 98 insert into City(CityCode,CityName)
 99 values
100 ('JH', 'Johannesburg'),
101 ('LT', 'Luis Tritchart'),
102 ('CT', 'Kappa'),
103 ('NP', 'Neslpruit'),
104 ('DB', 'KZN'),
105 ('PT', 'Tshwane'),
106 ('PE', 'Port Elizabeth'),
107 ('MK', 'Mafikeng'),
108 ('PL', 'Polokwane'),
109 ('EL', 'East London'),
110 ('NW', 'Newcastle'),
111 ('BF', 'Bloemfontein')
112
113 select*from City
114
115 /*
116 Create the Sales relation with the following attributes, specifying
      primary and foreign
117 keys:
118 Customer ID, Customer Name, City Code, Product ID, Quantity, Product
      Price,
119 Sales, Date ID
120 */
121
122 create table Sales(
123 CustomerID int primary key,
124 CustomerName varchar(30),
125 CityCode varchar(2),
126 ProductID int ,
127 DateID int ,
128 Quantity int,
129 ProductPrice decimal(30,2),
130 Sales decimal(30,2),
131
132 FOREIGN KEY (ProductID) References Products(ProductID),
133 FOREIGN KEY (DateID) REFERENCES Date(DateID),
134 FOREIGN KEY (CityCode) REFERENCES City(CityCode)
135 )
136
137 select*from Sales
138
139 /*   Insert tuples of data into the Sales relation:  */
140
141 insert into Sales
142 (CustomerID,CustomerName,CityCode,ProductID,Quantity,ProductPrice,Sales,
```

```
143  DateID)
144  values
145  (101, 'Andile', 'JH', 10, 800, 900.00, 720000.00, 202201),
146  (102, 'Belinda', 'LT', 11, 104 , 1200.00, 124800.00, 202201),
147  (103, 'Cathy', 'CT', 12, 300, 6600.00, 1980000.00, 202201),
148  (104, 'Dylan', 'NP', 13, 240, 70.00, 16800.00, 202201),
149  (105, 'Emery', 'DB', 14, 321, 1800.00, 577800.00, 202201),
150  (106, 'Fatima', 'PT', 15, 105, 600.00, 63000.00, 202202),
151  (107, 'Gaily', 'PE', 16, 503, 350.00, 176050.00, 202202),
152  (108, 'Hlope', 'MK', 17, 438, 270.00, 118260.00, 202202),
153  (109, 'Imran', 'PL', 18, 352, 250.00, 88000.00, 202202),
154  (110, 'Julia', 'JH', 19, 678, 2300.00, 1559400.00, 202202),
155  (111, 'Kuda', 'EL', 20, 424, 6800.00, 2883200.00, 202203),
156  (112, 'Lynn', 'JH', 10, 965, 900.00, 868500.00, 202203),
157  (113, 'Mlungisi', 'CT', 11, 236, 1200.00, 283200.00, 202203),
158  (114, 'Ngubane', 'LT', 12, 463, 6600.00, 3055800.00, 202203),
159  (115, 'Otilia', 'PL', 13, 198, 70.00, 13860.00, 202203),
160  (116, 'Pete', 'MK', 14, 673, 1800.00, 1211400.00, 202204),
161  (117, 'Qobani', 'PE', 15, 392, 600.00, 235200.00, 202204),
162  (118, 'Ramapula', 'JH', 16, 851, 350.00, 297850.00, 202204),
163  (119, 'Sue', 'DB', 17, 425, 270.00, 114750.00, 202204),
164  (120, 'Teclar', 'NW', 18, 294, 250.00, 73500.00, 202204),
165  (121, 'Ulendo', 'BF', 19, 383, 2300.00, 880900.00, 202205),
166  (122, 'Vivian', 'NP', 20, 298, 6800.00, 2026400.00, 202205),
167  (123, 'Welly', 'MK', 10, 283, 900.00, 254700.00, 202205),
168  (124, 'Xolani', 'CT', 11, 593, 1200.00, 711600.00, 202205),
169  (125, 'Yvette', 'LT', 12, 296, 6600.00, 1953600.00, 202206),
170  (126, 'Zama', 'NW', 13, 519, 70.00, 36330.00, 202206),
171  (127, 'Aaron', 'JH', 10, 800, 900.00, 720000.00, 202206),
172  (128, 'Brooke', 'LT', 11, 104, 1200.00, 124800.00, 202206),
173  (129, 'Cain', 'CT', 12, 300, 6600.00, 1980000.00, 202207),
174  (130, 'Dre', 'NP', 13, 240, 70.00, 16800.00, 202207),
175  (131, 'Ethan', 'DB', 14, 321, 1800.00, 577800.00, 202207),
176  (132, 'Florence', 'PT', 15, 105, 600.00, 63000.00, 202207),
177  (133, 'Gilian', 'PE', 16, 503, 350.00, 176050.00, 202207),
178  (134, 'Humbulani', 'MK', 17, 438, 270.00, 118260.00, 202208),
179  (135, 'Ian', 'PL', 18, 352, 250.00, 88000.00, 202208),
180  (136, 'Jacob', 'JH', 19, 678, 2300.00, 1559400.00, 202208),
181  (137, 'Khosi', 'EL', 20, 424, 6800.00, 2883200.00, 202208),
182  (138, 'Lulu', 'JH', 10, 965, 900.00, 868500.00, 202209),
183  (139, 'Mercy', 'CT', 11, 236, 1200.00, 283200.00, 202209),
184  (140, 'Nhlakanipho','LT', 12, 463, 6600.00, 3055800.00, 202209),
185  (141, 'Obrey', 'PL', 13, 198, 70.00, 13860.00, 202209),
186  (142, 'Phule', 'MK', 14, 673, 1800.00, 1211400.00, 202209),
187  (143, 'Qulu', 'PE', 15, 392, 600.00, 235200.00, 202210),
188  (144, 'Reitumetse','JH', 16, 851, 350.00, 297850.00, 202210),
189  (145, 'Slindelo', 'DB', 17, 425, 270.00, 114750.00, 202210),
190  (146, 'Thulani', 'NW', 18, 294, 250.00, 73500.00, 202210),
191  (147, 'Uria', 'BF', 19, 383, 2300.00, 880900.00, 202210),
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192  (148, 'Valarie', 'NP', 20, 298, 6800.00, 2026400.00, 202211),
193  (149, 'Wandiswa', 'MK', 10, 283, 900.00, 254700.00, 202211),
194  (150, 'Xolele', 'CT', 11, 593, 1200.00, 711600.00, 202211),
195  (151, 'Yvonne', 'LT', 12, 296, 6600.00, 1953600.00, 202211),
196  (152, 'Zime', 'JH', 13, 519, 70.00, 36330.00, 202211),
197  (153, 'Allan', 'JH', 10, 800, 900.00, 720000.00, 202212),
198  (154, 'Bulelani', 'LT', 11, 104, 1200.00, 124800.00, 202212),
199  (155, 'Cele', 'CT', 12, 300, 6600.00, 1980000.00, 202212),
200  (156, 'Debra', 'NP', 13, 240, 70.00, 16800.00, 202212),
201  (157, 'Ellen', 'DB', 14, 321, 1800.00, 577800.00, 202301),
202  (158, 'Felix', 'PT', 15, 105, 600.00, 63000.00, 202301),
203  (159, 'George', 'PE', 16, 503, 350.00, 176050.00, 202301),
204  (160, 'Holomisa', 'MK', 17, 438, 270.00, 118260.00, 202301),
205  (161, 'Ingrid', 'PL', 18, 352, 250.00, 88000.00, 202302),
206  (162, 'Jason', 'JH', 19, 678, 2300.00, 1559400.00, 202302),
207  (163, 'Khumbulani','EL', 20, 424, 6800.00, 2883200.00, 202302),
208  (164, 'Lindelani','JH', 10, 965, 900.00, 868500.00, 202302),
209  (165, 'Mabaso', 'CT', 11, 236, 1200.00, 283200.00, 202303),
210  (166, 'Nqubani', 'LT', 12, 463, 6600.00, 3055800.00, 202303),
211  (167, 'Onke', 'PL', 13, 198, 70.00, 13860.00, 202303),
212  (168, 'Precious', 'MK', 14, 673, 1800.00, 1211400.00, 202303),
213  (169, 'Qwabe', 'PE', 15, 392, 600.00, 235200.00, 202303),
214  (170, 'Rulani', 'JH', 16, 851, 350.00, 297850.00, 202303),
215  (171, 'Simbongile','DB', 17, 425, 270.00, 114750.00, 202304),
216  (172, 'Themba', 'NW', 18, 294, 250.00, 73500.00, 202304),
217  (173, 'Urthar', 'BF', 19, 383, 2300.00, 880900.00, 202304),
218  (174, 'Vusimusi', 'NP', 20, 298, 6800.00, 2026400.00, 202304),
219  (175, 'Wandile', 'MK', 10, 283, 900.00, 254700.00, 202305),
220  (176, 'Xolisi', 'CT', 11, 593, 1200.00, 711600.00, 202305),
221  (177, 'Yolanda', 'LT', 12, 296, 6600.00, 1953600.00, 202305),
222  (178, 'Zinhle', 'LT', 13, 519, 70.00, 36330.00, 202305),
223  (179, 'Asanda', 'JH', 10, 800, 900.00, 720000.00, 202306),
224  (180, 'Bhekie', 'LT', 11, 104, 1200.00, 124800.00, 202306),
225  (181, 'Cumani', 'CT', 12, 300, 6600.00, 1980000.00, 202306),
226  (182, 'Dennis', 'NP', 13, 240, 70.00, 16800.00, 202306),
227  (183, 'Emma', 'DB', 14, 321, 1800.00, 577800.00, 202307),
228  (184, 'Fiona', 'PT', 15, 105, 600.00, 63000.00, 202307),
229  (185, 'Garry', 'PE', 16, 503, 350.00, 176050.00, 202307),
230  (186, 'Hlalulile', 'MK', 17, 438, 270.00, 118260.00, 202308),
231  (187, 'Indie', 'PL', 18, 352, 250.00, 88000.00, 202308),
232  (188, 'Juliana', 'JH', 19, 678, 2300.00, 1559400.00, 202308),
233  (189, 'Kheswa', 'EL', 20, 424, 6800.00, 2883200.00, 202309),
234  (190, 'Lindokuhle','JH', 10, 965, 900.00, 868500.00, 202309),
235  (191, 'Mandla', 'CT', 11, 236, 1200.00, 283200.00, 202309),
236  (192, 'Ngubane', 'LT', 12, 463, 6600.00, 3055800.00, 202309),
237  (193, 'Oscar', 'PL', 13, 198, 70.00, 13860.00, 202310),
238  (194, 'Peters', 'MK', 14, 673, 1800.00, 1211400.00, 202310),
239  (195, 'Qalani', 'PE', 15, 392, 600.00, 235200.00, 202310),
240  (196, 'Respina', 'JH', 16, 851, 350.00, 297850.00, 202310),
```

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241 (197, 'Shozi', 'DB', 17, 425, 270.00, 114750.00, 202311),
242 (198, 'Thembalami','NW', 18, 294, 250.00, 73500.00, 202311),
243 (199, 'Usofia', 'BF', 19, 383, 2300.00, 880900.00, 202311),
244 (200, 'Vhutshilo', 'NP', 20, 298, 6800.00, 2026400.00, 202311),
245 (201, 'Wendy', 'MK', 10, 283, 900.00, 254700.00, 202312),
246 (202, 'Xulu', 'CT', 11, 593, 1200.00, 711600.00, 202312),
247 (203, 'Yolandie', 'LT', 12, 296, 6600.00, 1953600.00, 202312),
248 (204, 'Zuma', 'LT', 13, 519, 70.00, 36330.00, 202312)
249
250 select*from Sales
251
252 /* Write an SQL statement to display the overall total sales made by the
      business */
253
254 select SUM(Sales) TotalSales from Sales;
255
256 /*
257 Create a new column in the Sales relation for Total Costs and calculate
      the total cost of
258 each product using the available data
259 */
260
261 alter table Sales add ProductCost float;
262
263 select*from Sales
264
265 update Sales set ProductCost = ProductPrice*0.1
266
267 select*from Sales
268
269 /*  Create a new column for Profit and calculate the profit for each
      product. */
270
271 alter table Sales add TotalCost float
272
273 select*from Sales
274
275 update Sales set TotalCost = Quantity*ProductCost
276
277 select*from Sales
278
279 /*
280 Create a new column in the Sales relation for Products Cost given that
      the cost of each
281 product was 10% of the product price.
282 */
283
284 alter table Sales add Profit float
285
```

```sql
select*from Sales

update Sales set profit = Sales -TotalCost

select*from Sales
```