Hypermarket Database Management System

Milestone – Implementation in MySQL

Group 17

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Percentage of Effort Contributed by Samarth: 50
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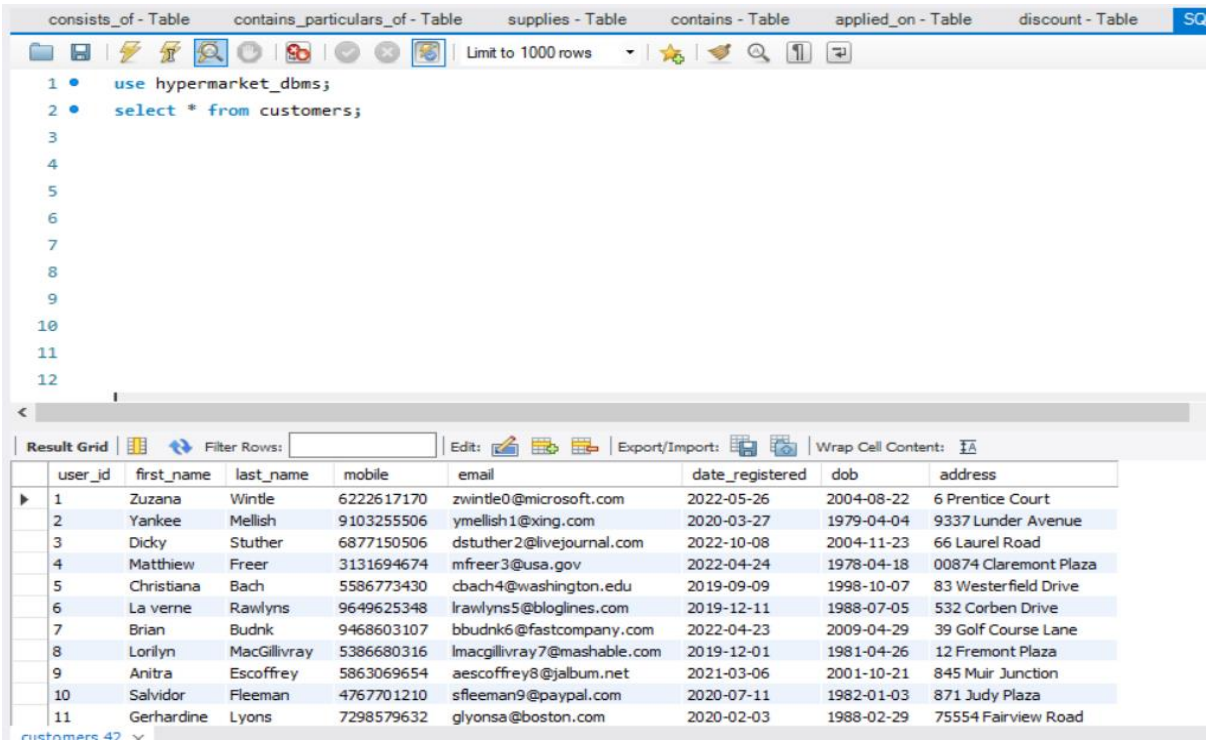
Submission Date: 11/05/2022

Implementation in MySQL

Queries for creating tables in MySQL:

Customers Table -

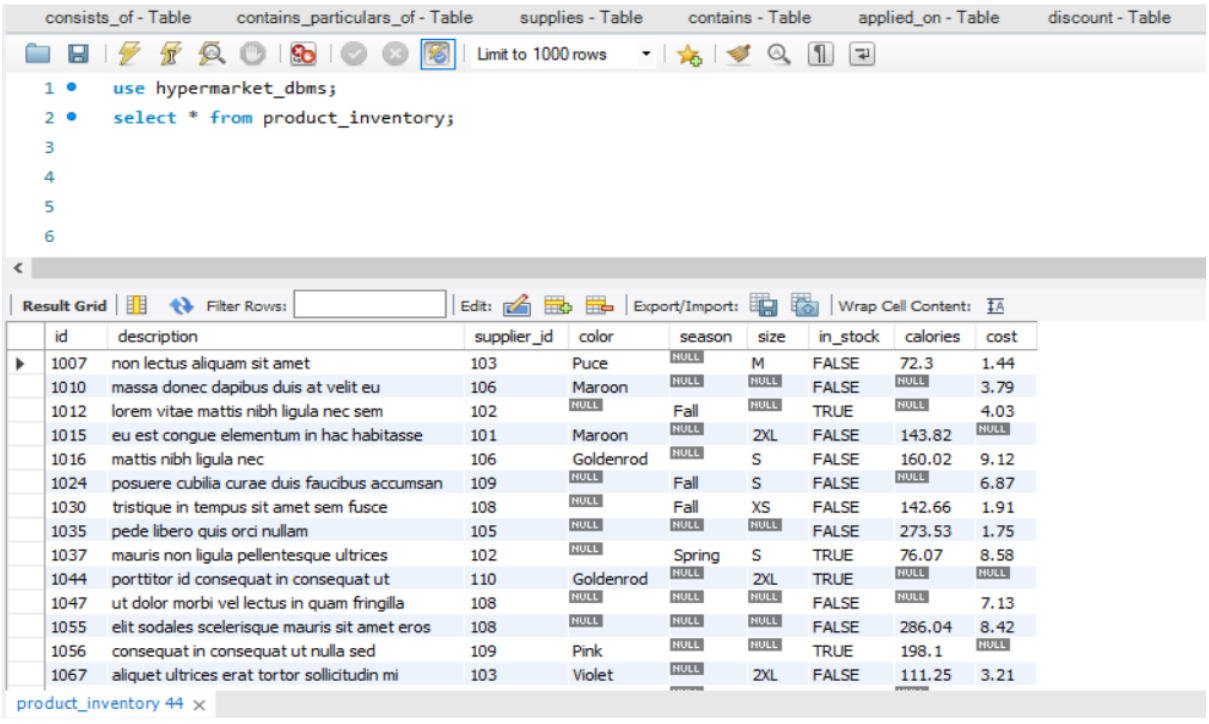
```
CREATE TABLE `customers` (
  `user_id` int NOT NULL,
  `first_name` varchar(45) DEFAULT NULL,
  `last_name` varchar(45) DEFAULT NULL,
  `mobile` bigint NOT NULL,
  `email` varchar(45) NOT NULL,
  `date_registered` date DEFAULT NULL,
  `dob` date DEFAULT NULL,
  `address` varchar(45) DEFAULT NULL,
  PRIMARY KEY (`user_id`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci
```



user_id	first_name	last_name	mobile	email	date_registered	dob	address
1	Zuzana	Wintle	6222617170	zwintle0@microsoft.com	2022-05-26	2004-08-22	6 Prentice Court
2	Yankee	Mellish	9103255506	ymellish1@xing.com	2020-03-27	1979-04-04	9337 Lunder Avenue
3	Dicky	Stuther	6877150506	dstuther2@livejournal.com	2022-10-08	2004-11-23	66 Laurel Road
4	Matthiew	Freer	3131694674	mfreer3@usa.gov	2022-04-24	1978-04-18	00874 Claremont Plaza
5	Christiana	Bach	5586773430	cbach4@washington.edu	2019-09-09	1998-10-07	83 Westerfield Drive
6	La verne	Rawlyns	9649625348	lrawlyns5@bloglines.com	2019-12-11	1988-07-05	532 Corben Drive
7	Brian	Budnk	9468603107	bbudnk6@fastcompany.com	2022-04-23	2009-04-29	39 Golf Course Lane
8	Lorilyn	MacGillivray	5386680316	lmacgillivray7@mashable.com	2019-12-01	1981-04-26	12 Fremont Plaza
9	Anitra	Escoffrey	5863069654	aescoffrey8@jalbum.net	2021-03-06	2001-10-21	845 Muir Junction
10	Salvidor	Fleeman	4767701210	sfleeman9@paypal.com	2020-07-11	1982-01-03	871 Judy Plaza
11	Gerhardine	Lyons	7298579632	glyonsa@boston.com	2020-02-03	1988-02-29	75554 Fairview Road

Product Inventory Table -

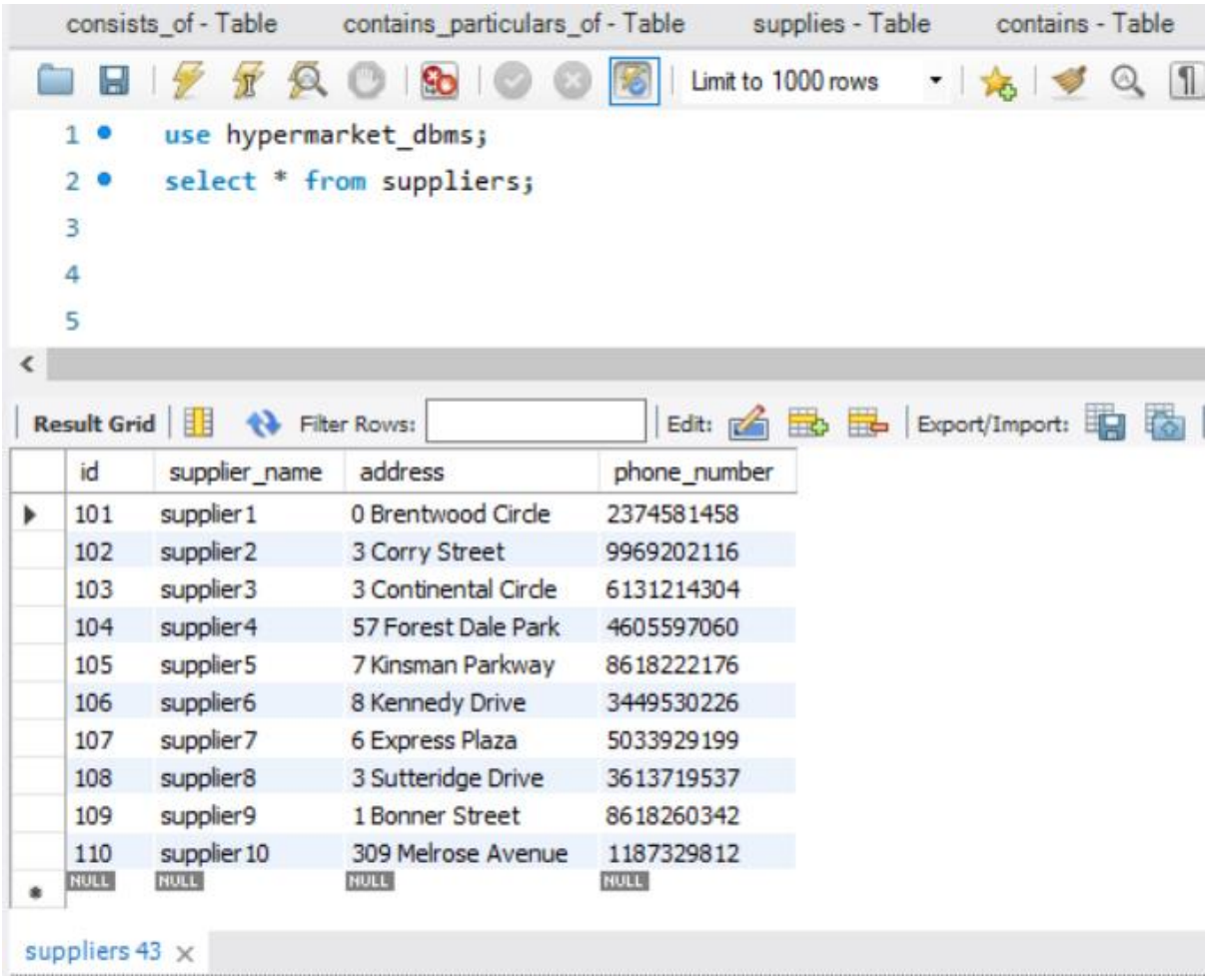
```
CREATE TABLE `product_inventory` (
  `id` int NOT NULL,
  `description` varchar(45) DEFAULT NULL,
  `supplier_id` int NOT NULL,
  `color` varchar(45) DEFAULT NULL,
  `season` varchar(45) DEFAULT NULL,
  `size` varchar(45) DEFAULT NULL,
  `in_stock` varchar(10) DEFAULT NULL,
  `calories` double DEFAULT NULL,
  `category` varchar(45) DEFAULT NULL,
  `cost` double DEFAULT NULL,
  PRIMARY KEY (`id`),
  KEY `supplier_id` (`supplier_id`),
  CONSTRAINT `product_inventory_ibfk_1` FOREIGN KEY (`supplier_id`) REFERENCES `suppliers` (`id`) ON DELETE CASCADE ON UPDATE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci
```



id	description	supplier_id	color	season	size	in_stock	calories	cost
1007	non lectus aliquam sit amet	103	Puce	NULL	M	FALSE	72.3	1.44
1010	massa donec dapibus duis at velit eu	106	Maroon	NULL	NULL	FALSE	NULL	3.79
1012	lorem vitae mattis nibh ligula nec sem	102	NULL	Fall	NULL	TRUE	NULL	4.03
1015	eu est congue elementum in hac habitasse	101	Maroon	NULL	2XL	FALSE	143.82	NULL
1016	mattis nibh ligula nec	106	Goldenrod	NULL	S	FALSE	160.02	9.12
1024	posuere cubilia curae duis faucibus accumsan	109	NULL	Fall	S	FALSE	NULL	6.87
1030	tristique in tempus sit amet sem fusce	108	NULL	Fall	XS	FALSE	142.66	1.91
1035	pede libero quis orci nullam	105	NULL	NULL	NULL	FALSE	273.53	1.75
1037	mauris non ligula pellentesque ultrices	102	NULL	Spring	S	TRUE	76.07	8.58
1044	porttitor id consequat in consequat ut	110	Goldenrod	NULL	2XL	TRUE	NULL	NULL
1047	ut dolor morbi vel lectus in quam fringilla	108	NULL	NULL	NULL	FALSE	NULL	7.13
1055	elit sodales scelerisque mauris sit amet eros	108	NULL	NULL	NULL	FALSE	286.04	8.42
1056	consequat in consequat ut nulla sed	109	Pink	NULL	NULL	TRUE	198.1	NULL
1067	aliquet ultrices erat tortor sollicitudin mi	103	Violet	NULL	2XL	FALSE	111.25	3.21

Suppliers Table -

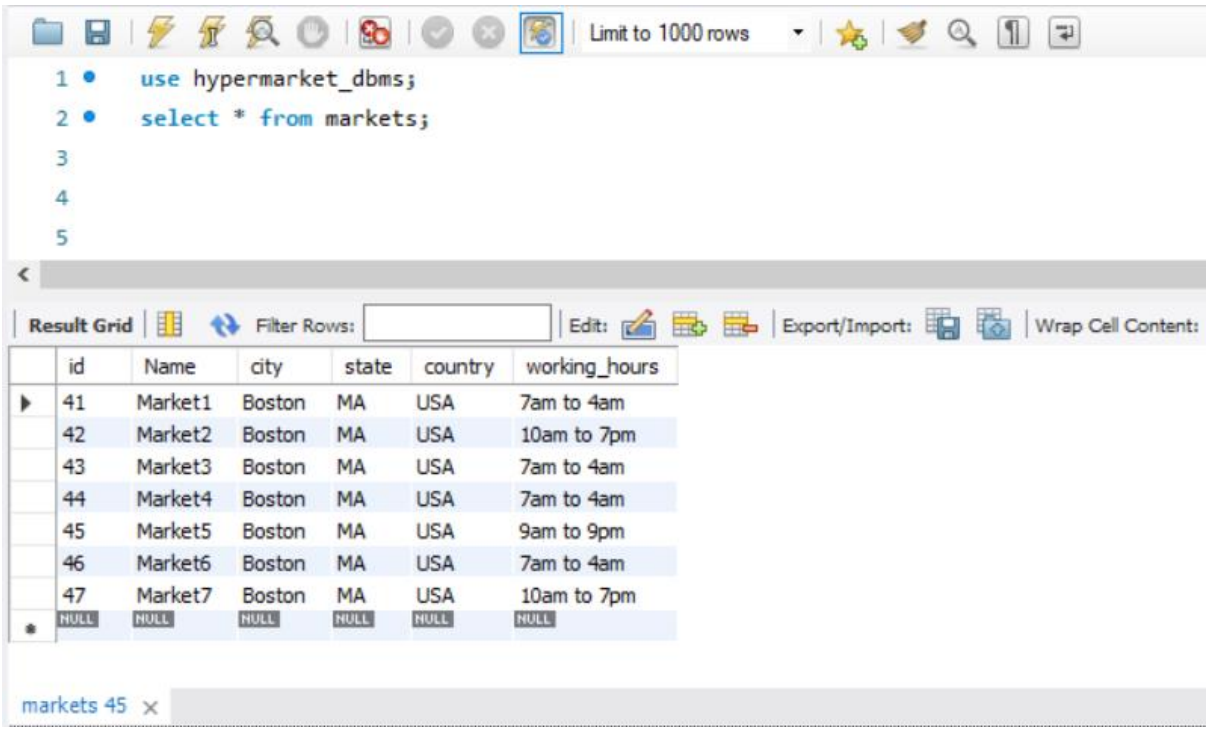
```
CREATE TABLE `suppliers` (
  `id` int NOT NULL,
  `supplier_name` varchar(45) NOT NULL,
  `address` varchar(45) DEFAULT NULL,
  `phone_number` int DEFAULT NULL,
  PRIMARY KEY (`id`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci
```



id	supplier_name	address	phone_number
101	supplier1	0 Brentwood Circle	2374581458
102	supplier2	3 Corry Street	9969202116
103	supplier3	3 Continental Circle	6131214304
104	supplier4	57 Forest Dale Park	4605597060
105	supplier5	7 Kinsman Parkway	8618222176
106	supplier6	8 Kennedy Drive	3449530226
107	supplier7	6 Express Plaza	5033929199
108	supplier8	3 Sutteridge Drive	3613719537
109	supplier9	1 Bonner Street	8618260342
110	supplier10	309 Melrose Avenue	1187329812
NULL	NULL	NULL	NULL

Markets Table -

```
CREATE TABLE `markets` (
  `id` int NOT NULL,
  `Name` varchar(45) NOT NULL,
  `city` varchar(45) DEFAULT NULL,
  `state` varchar(45) DEFAULT NULL,
  `country` varchar(45) DEFAULT NULL,
  `working_hours` varchar(20) DEFAULT NULL,
  PRIMARY KEY (`id`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci
```



id	Name	city	state	country	working_hours
41	Market1	Boston	MA	USA	7am to 4am
42	Market2	Boston	MA	USA	10am to 7pm
43	Market3	Boston	MA	USA	7am to 4am
44	Market4	Boston	MA	USA	7am to 4am
45	Market5	Boston	MA	USA	9am to 9pm
46	Market6	Boston	MA	USA	7am to 4am
47	Market7	Boston	MA	USA	10am to 7pm
NULL	NULL	NULL	NULL	NULL	NULL

Discount Table -

```
CREATE TABLE `discount` (
  `user_id` int NOT NULL,
  `discount_amount` double DEFAULT NULL,
  PRIMARY KEY (`user_id`),
```

```
  CONSTRAINT `discount_ibfk_1` FOREIGN KEY (`user_id`) REFERENCES `customers` (`user_id`) ON DELETE CASCADE ON UPDATE CASCADE

) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci
```

Points Table -

```
CREATE TABLE `points` (

  `user_id` int NOT NULL,

  `available_points` double DEFAULT NULL,

  `points_acquired_date` date DEFAULT NULL,

  `points_expired` double DEFAULT NULL,

  PRIMARY KEY (`user_id`),

  CONSTRAINT `points_ibfk_1` FOREIGN KEY (`user_id`) REFERENCES `customers` (`user_id`) ON DELETE CASCADE ON UPDATE CASCADE

) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci
```

Verticals Table -

```
CREATE TABLE `verticals` (

  `id` int NOT NULL,

  `type` varchar(45) DEFAULT NULL,

  PRIMARY KEY (`id`)

) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci
```

Brands Table -

```
CREATE TABLE `brands` (

  `id` int NOT NULL,

  `name` varchar(45) NOT NULL,

  `product_id` int NOT NULL,
```

```
  `v_id` int NOT NULL,
  PRIMARY KEY (`id`),
  KEY `v_id` (`v_id`),
  CONSTRAINT `brands_ibfk_1` FOREIGN KEY (`v_id`) REFERENCES `verticals` (`id`) ON DELETE CASCADE ON UPDATE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci
```

Line Transactions Table -

```
CREATE TABLE `line_transactions` (
  `bill_id` int NOT NULL,
  `user_id` int NOT NULL,
  `product_id` int NOT NULL,
  `description` varchar(45) DEFAULT NULL,
  `line_amount` double DEFAULT NULL,
  `quantity` int DEFAULT NULL,
  `line_discount` double DEFAULT NULL,
  `offer_id` int DEFAULT NULL,
  `market_id` int NOT NULL,
  `vertical_id` int NOT NULL,
  `brand_id` int NOT NULL,
  PRIMARY KEY (`bill_id`),
  KEY `user_id` (`user_id`),
  KEY `product_id` (`product_id`),
  KEY `offer_id` (`offer_id`),
  KEY `market_id` (`market_id`),
  KEY `vertical_id` (`vertical_id`),
  KEY `brand_id` (`brand_id`),
  CONSTRAINT `line_transactions_ibfk_1` FOREIGN KEY (`user_id`) REFERENCES `customers` (`user_id`) ON DELETE CASCADE ON UPDATE CASCADE,
  CONSTRAINT `line_transactions_ibfk_2` FOREIGN KEY (`product_id`) REFERENCES `product_inventory` (`id`) ON DELETE CASCADE ON UPDATE CASCADE,
```

```
  CONSTRAINT `line_transactions_ibfk_3` FOREIGN KEY (`offer_id`) REFERENCES `offers` (`id`) ON DELETE CASCADE ON UPDATE CASCADE,

  CONSTRAINT `line_transactions_ibfk_4` FOREIGN KEY (`market_id`) REFERENCES `markets` (`id`) ON DELETE CASCADE ON UPDATE CASCADE,

  CONSTRAINT `line_transactions_ibfk_5` FOREIGN KEY (`vertical_id`) REFERENCES `verticals` (`id`) ON DELETE CASCADE ON UPDATE CASCADE,

  CONSTRAINT `line_transactions_ibfk_6` FOREIGN KEY (`brand_id`) REFERENCES `brands` (`id`) ON DELETE CASCADE ON UPDATE CASCADE

) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci
```

Bill Transactions Table -

```
CREATE TABLE `bill_transactions` (

  `bill_id` int NOT NULL,

  `user_id` int NOT NULL,

  `bill_discount` double DEFAULT NULL,

  `bill_date` date DEFAULT NULL,

  `bill_time` time DEFAULT NULL,

  `bill_amount` double DEFAULT NULL,

  `total_quantity` int DEFAULT NULL,

  `total_tax` double DEFAULT NULL,

  `points_earned` double DEFAULT NULL,

  `payment_type` varchar(45) DEFAULT NULL,

  `market_id` int NOT NULL,

  PRIMARY KEY (`bill_id`,`user_id`),

  KEY `user_id` (`user_id`),

  KEY `market_id` (`market_id`),

  CONSTRAINT `bill_transactions_ibfk_1` FOREIGN KEY (`user_id`) REFERENCES `customers` (`user_id`) ON DELETE CASCADE ON UPDATE CASCADE,

  CONSTRAINT `bill_transactions_ibfk_2` FOREIGN KEY (`bill_id`) REFERENCES `line_transactions` (`bill_id`) ON DELETE CASCADE ON UPDATE CASCADE,

  CONSTRAINT `bill_transactions_ibfk_3` FOREIGN KEY (`market_id`) REFERENCES `markets` (`id`) ON DELETE CASCADE ON UPDATE CASCADE
```

) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci

Supplies Table -

```
CREATE TABLE `supplies` (
  `b_id` int NOT NULL,
  `s_id` int NOT NULL,
  `pi_id` int NOT NULL,
  PRIMARY KEY (`b_id`,`s_id`,`pi_id`),
  KEY `s_id` (`s_id`),
  KEY `pi_id` (`pi_id`),
  CONSTRAINT `supplies_ibfk_1` FOREIGN KEY (`b_id`) REFERENCES `brands` (`id`) ON DELETE CASCADE ON UPDATE CASCADE,
  CONSTRAINT `supplies_ibfk_2` FOREIGN KEY (`s_id`) REFERENCES `suppliers` (`id`) ON DELETE CASCADE ON UPDATE CASCADE,
  CONSTRAINT `supplies_ibfk_3` FOREIGN KEY (`pi_id`) REFERENCES `product_inventory` (`id`) ON DELETE CASCADE ON UPDATE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci
```

Offers Table -

```
CREATE TABLE `offers` (
  `id` int NOT NULL,
  `offer_type` varchar(45) DEFAULT NULL,
  `offer_product_id` int NOT NULL,
  PRIMARY KEY (`id`),
  KEY `offer_product_id` (`offer_product_id`),
  CONSTRAINT `offers_ibfk_1` FOREIGN KEY (`offer_product_id`) REFERENCES `product_inventory` (`id`) ON DELETE CASCADE ON UPDATE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci
```

Offer Applied On Bill Table -

```
CREATE TABLE `applied_on` (
  `bill_id` int NOT NULL,
  `o_id` int NOT NULL,
  PRIMARY KEY (`bill_id`,`o_id`),
  KEY `o_id` (`o_id`),
  CONSTRAINT `applied_on_ibfk_1` FOREIGN KEY (`bill_id`) REFERENCES `line_transactions` (`bill_id`) ON DELETE CASCADE ON UPDATE CASCADE,
  CONSTRAINT `applied_on_ibfk_2` FOREIGN KEY (`o_id`) REFERENCES `offers` (`id`) ON DELETE CASCADE ON UPDATE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci
```

Market consists of Verticals Table -

```
CREATE TABLE `consists_of` (
  `m_id` int NOT NULL,
  `v_id` int NOT NULL,
  PRIMARY KEY (`m_id`,`v_id`),
  KEY `v_id` (`v_id`),
  CONSTRAINT `consists_of_ibfk_1` FOREIGN KEY (`m_id`) REFERENCES `markets` (`id`) ON DELETE CASCADE ON UPDATE CASCADE,
  CONSTRAINT `consists_of_ibfk_2` FOREIGN KEY (`v_id`) REFERENCES `verticals` (`id`) ON DELETE CASCADE ON UPDATE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci
```

Line Transactions contains product details Table -

```
CREATE TABLE `contains` (
  `bill_id` int NOT NULL,
  `pi_id` int NOT NULL,
```

```
  PRIMARY KEY (`bill_id`,`pi_id`),
  KEY `pi_id` (`pi_id`),
  CONSTRAINT `contains_ibfk_1` FOREIGN KEY (`bill_id`) REFERENCES `line_transactions` (`bill_id`) ON DELETE CASCADE ON UPDATE CASCADE,
  CONSTRAINT `contains_ibfk_2` FOREIGN KEY (`pi_id`) REFERENCES `product_inventory` (`id`) ON DELETE CASCADE ON UPDATE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci
```

Bill Transactions contains market details Table -

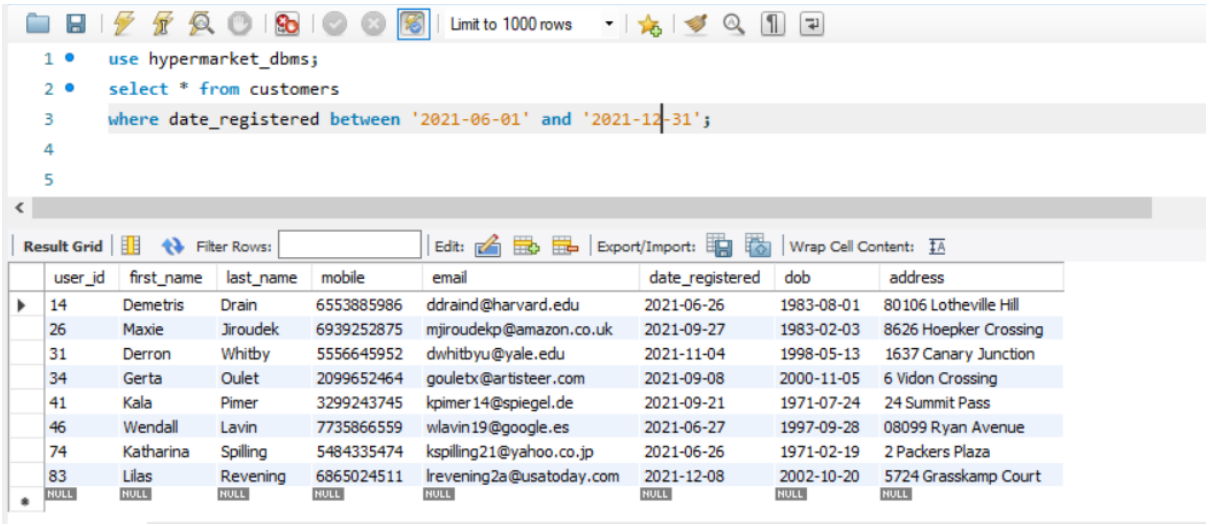
```
CREATE TABLE `has_details_of` (
  `bill_id` int NOT NULL,
  `m_id` int NOT NULL,
  PRIMARY KEY (`bill_id`,`m_id`),
  KEY `m_id` (`m_id`),
  CONSTRAINT `has_details_of_ibfk_1` FOREIGN KEY (`bill_id`) REFERENCES `bill_transactions` (`bill_id`) ON DELETE CASCADE ON UPDATE CASCADE,
  CONSTRAINT `has_details_of_ibfk_2` FOREIGN KEY (`m_id`) REFERENCES `markets` (`id`) ON DELETE CASCADE ON UPDATE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci
```

Line Transactions contains verticals details Table -

```
CREATE TABLE `contains_particulars_of` (
  `bill_id` int NOT NULL,
  `v_id` int NOT NULL,
  PRIMARY KEY (`bill_id`,`v_id`),
  KEY `v_id` (`v_id`),
  CONSTRAINT `contains_particulars_of_ibfk_1` FOREIGN KEY (`bill_id`) REFERENCES `line_transactions` (`bill_id`) ON DELETE CASCADE ON UPDATE CASCADE,
  CONSTRAINT `contains_particulars_of_ibfk_2` FOREIGN KEY (`v_id`) REFERENCES `verticals` (`id`) ON DELETE CASCADE ON UPDATE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci
```

Sample Queries using tables created on MySQL -

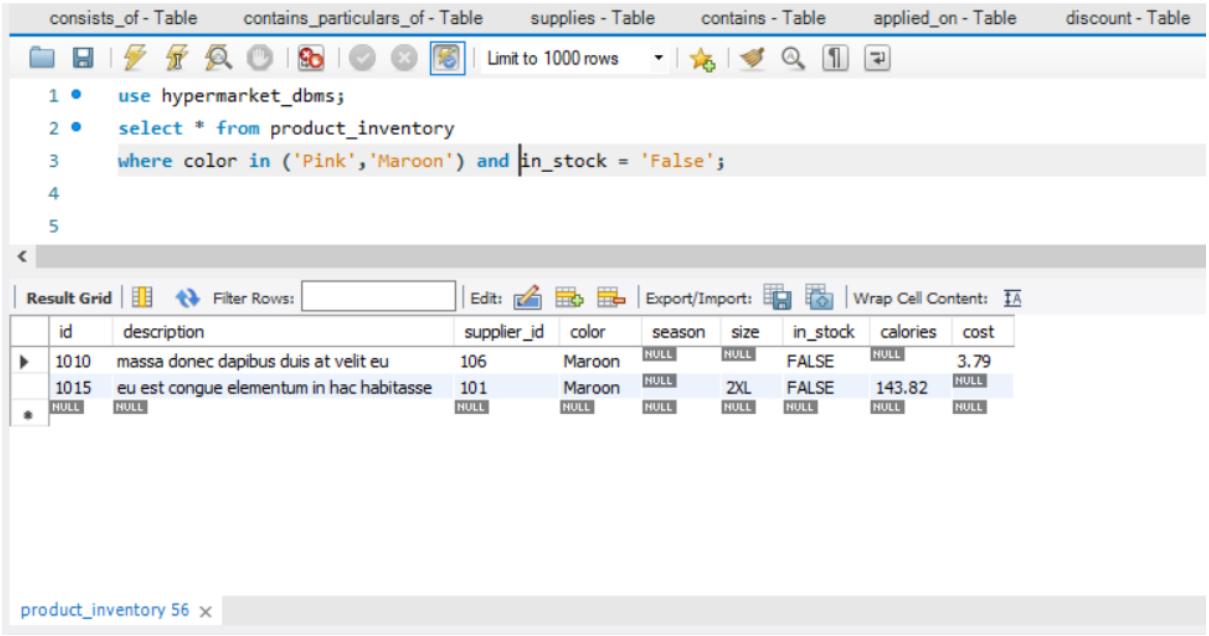
- Customers who registered between June 1, 2021 and Dec 31, 2021



```
use hypermarket_dbms;
select * from customers
where date_registered between '2021-06-01' and '2021-12-31';
```

user_id	first_name	last_name	mobile	email	date_registered	dob	address
14	Demetris	Drain	6553885986	ddraind@harvard.edu	2021-06-26	1983-08-01	80106 Lotheville Hill
26	Maxie	Jiroudek	6939252875	mjiroudekp@amazon.co.uk	2021-09-27	1983-02-03	8626 Hoepker Crossing
31	Derron	Whitby	5556645952	dwhitbyu@yale.edu	2021-11-04	1998-05-13	1637 Canary Junction
34	Gerta	Oulet	2099652464	gouletx@artisteer.com	2021-09-08	2000-11-05	6 Vidon Crossing
41	Kala	Pimer	3299243745	kpimer14@spiegel.de	2021-09-21	1971-07-24	24 Summit Pass
46	Wendall	Lavin	7735866559	wlavin19@google.es	2021-06-27	1997-09-28	08099 Ryan Avenue
74	Katharina	Spilling	5484335474	kspilling21@yahoo.co.jp	2021-06-26	1971-02-19	2 Packers Plaza
83	Lilas	Revening	6865024511	lrevening2a@usatoday.com	2021-12-08	2002-10-20	5724 Grasskamp Court

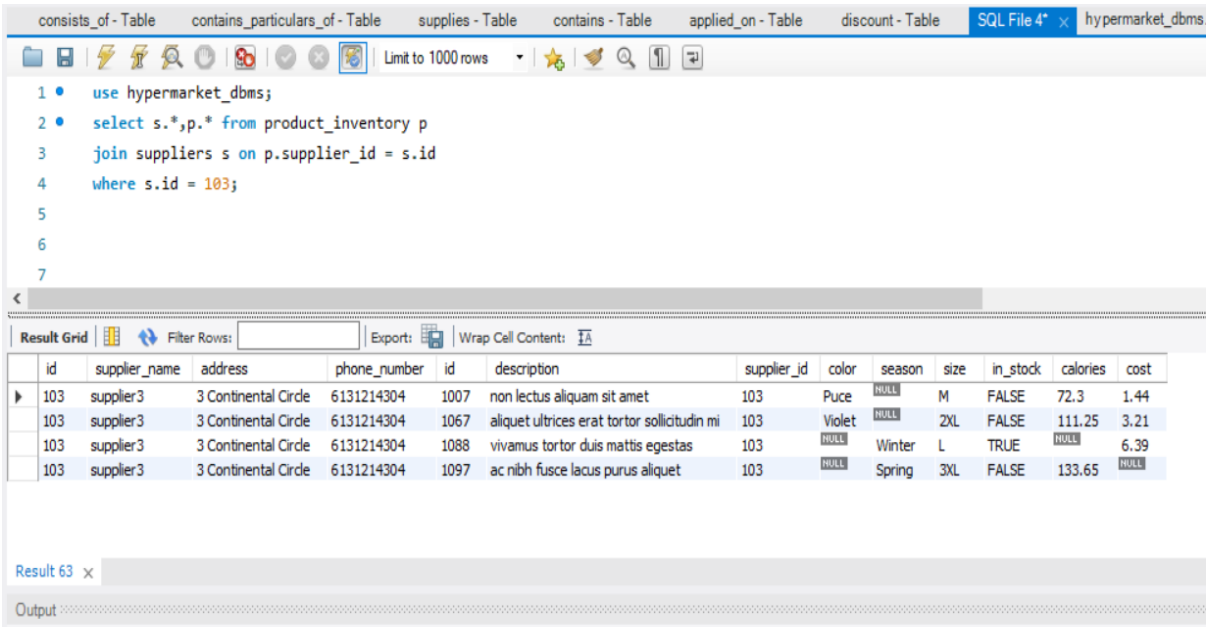
- Products with colors Pink or Maroon and not in stock



```
use hypermarket_dbms;
select * from product_inventory
where color in ('Pink','Maroon') and in_stock = 'False';
```

id	description	supplier_id	color	season	size	in_stock	calories	cost
1010	massa donec dapibus duis at velit eu	106	Maroon	NULL	NULL	FALSE	NULL	3.79
1015	eu est congue elementum in hac habitasse	101	Maroon	NULL	2XL	FALSE	143.82	NULL

- Details of products sold by supplier id 103



id	supplier_name	address	phone_number	id	description	supplier_id	color	season	size	in_stock	calories	cost
103	supplier3	3 Continental Circle	6131214304	1007	non lectus aliquam sit amet	103	Puce	NULL	M	FALSE	72.3	1.44
103	supplier3	3 Continental Circle	6131214304	1067	aliquet ultrices erat tortor sollicitudin mi	103	Violet	NULL	2XL	FALSE	111.25	3.21
103	supplier3	3 Continental Circle	6131214304	1088	vivamus tortor duis mattis egestas	103	NULL	Winter	L	TRUE	NULL	6.39
103	supplier3	3 Continental Circle	6131214304	1097	ac nibh fusce lacus purus aliquet	103	NULL	Spring	3XL	FALSE	133.65	NULL