

Last Name:

First Name:

Student ID:

1.

- A) [ads] Type for 'item_id': string
- B) [pictures] Type for 'url': string
- C) [users] Type(s) for 'categories': array of string
- D) [ratings] Type for 'quality': number

2.

A) Results of query after creating index:

```
[
  {
    "users": {
      "_oid": "5d146dcc-cb2a-8262-10e5-1be9e73dc867",
      "address": {
        "city": "Lutzberg",
        "state": "Wisconsin",
        "street": "59118 Lisa Flats Suite 544",
        "zip": 59329
      },
      "categories": [
        "Beverages"
      ],
      "email": "Michael3885@gmail.com",
      "is_buyer": true,
      "is_seller": false,
      "joined_date": "2022-06-21",
      "name": {
        "first": "Michael",
        "last": "Winters"
      },
      "phone": [
        {
          "kind": "work",
          "number": "+1-378-252-7808x185"
        }
      ],
      "user_id": "ZHZW5"
    }
  ]
}
```

```
}  
]
```

B)

a. Query:

```
1 SELECT seller.user_id, ad_id, seller.placed_date  
2 FROM ads  
3 WHERE ads.plan = "platinum" AND seller.placed_date = "2022-01-10"  
4 LIMIT 5;
```

b. Results of query:

```
1 {  
2 {  
3   "ad_id": "VGJIW",  
4   "placed_date": "2022-01-10",  
5   "user_id": "XWXLZ"  
6 },  
7 {  
8   "ad_id": "AMTLK",  
9   "placed_date": "2022-01-10",  
10  "user_id": "3I68A"  
11 },  
12 {  
13   "ad_id": "T7KRV",  
14   "placed_date": "2022-01-10",  
15   "user_id": "QWK5C"  
16 },  
17 {  
18   "ad_id": "V57KK",  
19   "placed_date": "2022-01-10",  
20   "user_id": "ISPDE"  
21 },  
22 {  
23   "ad_id": "UIMSD",  
24   "placed_date": "2022-01-10",  
25   "user_id": "9ZP9F"  
26 }  
27 }
```

C)

a. Query:

```
1 SELECT DISTINCT r.seller_id AS seller_user_id, r.buyer_id  
2 FROM ratings r  
3 WHERE r.pricing = 5 AND r.quality = 5 AND r.delivery = 5  
4 AND r.seller_id IS NOT NULL AND r.buyer_id IS NOT NULL
```

b. Results of query:

buyer_id	seller_user_id
ZMEIK	4L0BA
6QFD3	LZLDV
WLPL6	E9K7C

D)

a. Query:

```

1 SELECT item_id, name, price
2 FROM items
3 WHERE category = 'Home & Kitchen' AND price > 1000
4 ORDER BY price
5 LIMIT 10;

```

b. Time to execute without index:

85.1ms

c. Time to execute with index:

9.3ms

d. Create index statement:

```
CREATE INDEX adv_category_price ON `default`.`Interchange`.`interchange`.`items`(`category`,`price`)
```

e. Results of query:

item_id	name	price	
79CF6	Knives	1000.66	
RGD8Z	Mats	1001.68	
K7GOF	Salad Spinner	1003.28	
MWXAT	Salad Spinner	1005.59	
NLVHM	Knives	1010.35	
PH8O6	Bowls	1010.39	
OW7KV	Knives	1010.42	results[0].na
VZJPN	Knives	1015.92	
ISAIS	Can Opener	1018.93	
R8D0Z	Spoons	1020.1	

E)

a. Query:

```

1 SELECT p.pic_num, p.item_id, a.ad_id, a.plan
2 FROM pictures p
3 JOIN ads a ON p.item_id = a.item_id
4 WHERE p.format = "mp4" AND p.url LIKE "https://picsum.photos%"
5 ORDER BY p.item_id ASC
6 LIMIT 5;

```

```

1 CREATE INDEX idx_item_id ON ads(item_id);
2 |

```

b. Results of query:

ad_id	item_id	pic_num	plan
X731M	00E5T	1	other
F67QI	04AG5	1	silver
45TPY	050LI	2	gold
RXCHE	05H6L	2	other
N3CC8	07OKK	2	other

F)

a. Query:

```

1 SELECT user_id, ARRAY_LENGTH(categories) AS num_categories, email
2 FROM users
3 WHERE ARRAY_LENGTH(categories) > 1 AND LOWER(email) LIKE '%gmail.com'
4 ORDER BY num_categories DESC
5 LIMIT 10;

```

b. Results of query:

email	num_categories	user_id
03Jordanpatricia91782@gmail.com	13	WTZ2U
dia70@gmail.com	13	P8E5N
And416@gmail.com	13	X7OBY
smith.Nicholas@gmail.com	13	LQDA2
donovandestiny36@gmail.com	13	NEDMB
kev_ramirez@gmail.com	13	P8UM4
katJacobs@gmail.com	13	W2FN3
thomasrosario@gmail.com	12	0UIH1
Tim.campbell7567@gmail.com	12	6E7QO
reid40@gmail.com	12	5ZSRB

G) Screenshots:

Default

+ remote link

Local

cb local

+ collection

Interchange._default

+ remote link

Local

cb local

+ collection

▼

_default

Interchange._default._default

no indexes

drop analytics collection

Interchange.interchange

+ remote link

Local

cb local

+ collection

▼

ads

Interchange.interchange.ads

no indexes

drop analytics collection

▼

items

Interchange.interchange.items

no indexes

drop analytics collection

▼

users

Interchange.interchange.users


no indexes


drop analytics collection


Hide empty analytics scopes

H) Screenshots:

Local **cb local**  [+ collection](#)

▼  ads
Interchange.interchange.ads
Index:
sample_idx_1_ads (["id"])
[drop analytics collection](#)

▼  items
Interchange.interchange.items
Index:
sample_idx_1_items (["id"])
[drop analytics collection](#)

▼  users
Interchange.interchange.users
Index:
sample_idx_1_users (["id"])
[drop analytics collection](#)

[Hide empty analytics scopes](#)

l)

a. Query:

```
1 SELECT u.email, u.name, COUNT(*) AS item_num
2 FROM users u, items i |
3 WHERE i.buyer IS NOT Missing AND u.user_id = i.seller.user_id
4 AND i.category = 'Toys & Games'
5 GROUP BY u.email, u.name ORDER BY item_num DESC
6 LIMIT 5;
```

b. Results of query:

email	item_num	name	
rosario42149@gmail.com	2	first	last
		Sara	Rosario
861delgado62750@gmail.com	2	first	last
		Meghan	Delgado
Douglasflores@gmail.com	2	first	last
		Douglas	Flores
mel60@yahoo.com	2	first	last
		Schaefer	
christurner3335@gmail.com	2	first	last
		Chris	Turner

J)

a. Query:

```

1  SELECT u.name, u.email, COUNT(DISTINCT a.item_id) AS adNum
2  FROM users u JOIN ads a ON u.user_id = a.seller.user_id
3  WHERE a.seller.user_id IN (
4  SELECT DISTINCT VALUE i.seller.user_id
5  FROM items i JOIN ads ad ON i.item_id = ad.item_id
6  WHERE i.price > 1000 AND ad.plan = 'platinum')
7  GROUP BY u.name, u.email
8  HAVING COUNT(DISTINCT a.item_id) >= 15
9  ORDER BY adNum DESC;

```

b. Results of query:

adNum	email	name	
17	ellislis@gmail.com	first	last
		Lisa	Ellis
15	morgan.levine@gmail.com	first	last
		Morgan	Levine
15	William06@gmail.com	first	last
		William	Mckinney
15	95279lindseyhill@yahoo.com	first	last
		Lindsey	Hill

K)

a. Query:

```

1 SELECT DATE_PART_STR(i.seller.list_date, 'month') AS month, SUM(i.price) AS curr_month_sales, LAG(SUM(i.price))
2 OVER (ORDER BY DATE_PART_STR(i.seller.list_date, 'month')) AS prev_month_sales, SUM(i.price) - LAG(SUM(i.price))
3 OVER (ORDER BY DATE_PART_STR(i.seller.list_date, 'month')) AS MOM_diff
4 FROM items i
5 WHERE i.seller.user_id = 'P0JA5'
6 GROUP BY DATE_PART_STR(i.seller.list_date, 'month')

```

b. Results of query:

MOM_diff	curr_month_sales	month	prev_month_sales
<i>null</i>	4118.1900000000005	1	<i>null</i>
-1975.2400000000007	2142.95	2	4118.1900000000005
2088.2200000000003	4231.17	4	2142.95
-448.0300000000002	3783.14	5	4231.17
-1583.6399999999999	2199.5	6	3783.14
2041.1999999999998	4240.7	7	2199.5
-2017.5900000000001	2223.1099999999997	9	4240.7
698.71	2921.8199999999997	10	2223.1099999999997