3.5 Filtering Data

1. Write some SQL queries to return a lists of films that meet the following conditions. (**Hint:** These queries are not building upon each other, they are separate! Hence, when running the query for 1b. you don't need to take into account 1a, for example.) Your results tables should include the columns "film_ID," "title," and "description".

    - Film title contains the word *Uptown* in any position

```
1  SELECT title
2  FROM film
3  WHERE title LIKE '%Uptown%'
```

	title character varying (255)
1	Chainsaw Uptown
2	Dangerous Uptown
3	Uprising Uptown
4	Uptown Young

    - Film length is more than 120 minutes and rental rate is more than 2.99

```
SELECT film_id, title, rental_rate, length
FROM film
WHERE length > 120 AND rental_rate > 2.99
ORDER BY rental_rate DESC, length DESC
```

film_id [PK] integer	title character varying (255)	rental_rate numeric (4,2)	length smallint
182	Control Anthem	4.99	185
817	Soldiers Evolution	4.99	185
426	Home Pity	4.99	185
212	Darn Forrester	4.99	185
141	Chicago North	4.99	185
499	King Evolution	4.99	184
597	Moonwalker Fool	4.99	184
973	Wife Turn	4.99	183
340	Frontier Cabin	4.99	183
767	Scalawag Duck	4.99	183
765	Saturn Name	4.99	182
721	Reds Pocus	4.99	182
719	Records Zorro	4.99	182

- Rental duration is between 3 and 7 days (where 3 and 7 aren't inclusive)

```
SELECT film_id, film, rental_duration
FROM film
WHERE rental_duration > 3 AND rental_duration < 7
ORDER BY rental_duration ASC
```

film_id [PK] integer	film film	rental_duration smallint
315	(315,"Finding Anacon…	4
852	(852,"Strangelove Des…	4
317	(317,"Fireball Philadel…	4
319	(319,"Fish Opus","A To…	4
320	(320,"Flamingos Conn…	4
989	(989,"Working Microc…	4
601	(601,"Moulin Wake","A …	4
596	(596,"Moonshine Cabi…	4
329	(329,"Forrest Sons","A …	4
588	(588,"Model Fish","A B…	4
586	(586,"Mockingbird Hol…	4
85	(85,"Bonnie Holocaust…	4

```
SELECT *
FROM film
WHERE replacement_cost < 14.99;
```

- Film replacement cost is less than 14.99

		release_year integer	language_id smallint	rental_duration smallint	rental_rate numeric (4,2)	length smallint	replacement_cost numeric (5,2)	rating mpaa_rating	last_update timestamp without time zone	special_features text[]
1	udent in A Jet Boat	2006	1	4	4.99	73	12.99	PG-13	2013-05-26 14:50:58.951	{Trailers}
2	must Find a Car in Ancient China	2006	1	3	4.99	48	12.99	G	2013-05-26 14:50:58.951	{Trailers,"Deleted Scenes"}
3	nist in A MySQL Convention	2006	1	5	2.99	46	10.99	NC-17	2013-05-26 14:50:58.951	{Trailers,Commentaries,"Behind the Scenes"}
4	leet a Sumo Wrestler in California	2006	1	6	2.99	85	10.99	G	2013-05-26 14:50:58.951	{Commentaries,"Behind the Scenes"}
5	in Australia	2006	1	3	0.99	92	9.99	R	2013-05-26 14:50:58.951	{Trailers,"Deleted Scenes"}
6	o must Outrace a Database Administrator in A Shark Tank	2006	1	7	0.99	179	12.99	NC-17	2013-05-26 14:50:58.951	{"Deleted Scenes","Behind the Scenes"}
7	atabase Administrator in Ancient India	2006	1	5	2.99	168	11.99	NC-17	2013-05-26 14:50:58.951	{Trailers,Commentaries,"Deleted Scenes"}
8	in An Abandoned Amusement Park	2006	1	6	4.99	119	11.99	R	2013-05-26 14:50:58.951	{Trailers,Commentaries}
9	Challenge a Waitress in An Abandoned Mine Shaft	2006	1	7	0.99	127	12.99	PG-13	2013-05-26 14:50:58.951	{Trailers,Commentaries}
10	poser in An Abandoned Mine Shaft	2006	1	5	0.99	99	10.99	G	2013-05-26 14:50:58.951	{Trailers}
11	Woman in California	2006	1	5	2.99	170	10.99	NC-17	2013-05-26 14:50:58.951	{Trailers,"Behind the Scenes"}
12	in The Sahara Desert	2006	1	3	4.99	108	13.99	G	2013-05-26 14:50:58.951	{Trailers,Commentaries,"Deleted Scenes","Behind th
13	must Build a Mad Scientist in The First Manned Space Stati…	2006	1	5	2.99	75	10.99	NC-17	2013-05-26 14:50:58.951	{"Deleted Scenes"}
14	must Challenge a Squirrel in A MySQL Convention	2006	1	6	2.99	93	12.99	PG	2013-05-26 14:50:58.951	{Trailers,Commentaries}
15	ge a Secret Agent in Ancient Japan	2006	1	7	2.99	85	12.99	PG	2013-05-26 14:50:58.951	{Trailers,"Deleted Scenes"}

- Film rating is either PG or G

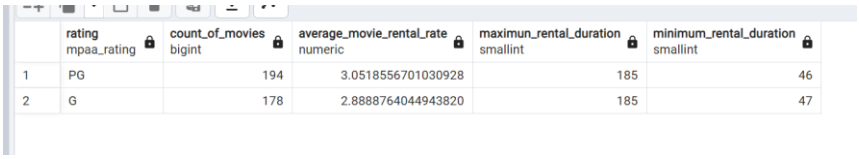
```
SELECT *
FROM film
WHERE rating IN ('PG', 'G')
```

2. Download your SQL queries outputs as CSV files using the pgadmin inbuilt functionality. Merge them into one Excel file (.xlsx) and create a separate sheet for each query (label them 1a, 1b, 1c, etc.). You'll use this file for all further questions in this Task too.

3. The query you wrote in step 1e returned a list of movies that meet certain criteria (film rating is either PG or G). The inventory team has asked for the following information about this list.

    - Count of the movies
    - Average rental rate
    - Maximum rental duration and minimum rental duration

```
SELECT rating,
    COUNT(film_id) AS count_of_movies,
    AVG (rental_rate) AS average_movie_rental_rate,
    MAX (length) AS maximun_rental_duration,
    MIN (length) AS minimum_rental_duration
FROM film
WHERE rating IN ('PG', 'G')
GROUP BY rating
```



	rating mpaa_rating	count_of_movies bigint	average_movie_rental_rate numeric	maximun_rental_duration smallint	minimum_rental_duration smallint
1	PG	194	3.0518556701030928	185	46
2	G	178	2.8888764044943820	185	47

4. To make the output easier for your coworkers to understand, give your aggregate columns the following aliases: "count of movies," "average movie rental rate," "maximum rental duration", and "minimum rental duration". Run the query and transfer the result into your Excel file on a new sheet as well as the code you used to get there.

```sql
SELECT rating,
    COUNT(film_id) AS count_of_movies,
    AVG (rental_rate) AS average_movie_rental_rate,
    MAX (length) AS maximun_rental_duration,
    MIN (length) AS minimum_rental_duration
FROM film
WHERE rating IN ('PG', 'G')
GROUP BY rating
```

5. The customer team would like to see the fields you calculated in step 3 grouped by rating. The totals in your results table should look the same as in step 4, but broken down by the rating column. Copy-paste your query and its output in your answers on a new sheet.

```sql
SELECT rating,
    COUNT(film_id) AS count_of_movies,
    AVG (rental_rate) AS average_movie_rental_rate,
    MAX (length) AS maximun_rental_duration,
    MIN (length) AS minimum_rental_duration
FROM film
WHERE rating IN ('PG', 'G')
GROUP BY rating
```

6. Save all of your answers in the Excel file you created in step 2 and upload it here for your tutor to review.