

UNIT 5.4 GRADED ASSIGNMENT

Group members

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UNIT 5.4 GRADED ASSIGNMENT

Task:

Use data from today's Daily Activities tasks/5_data_pipelines/day_4_data_lake/data/output_data/employee_earnings

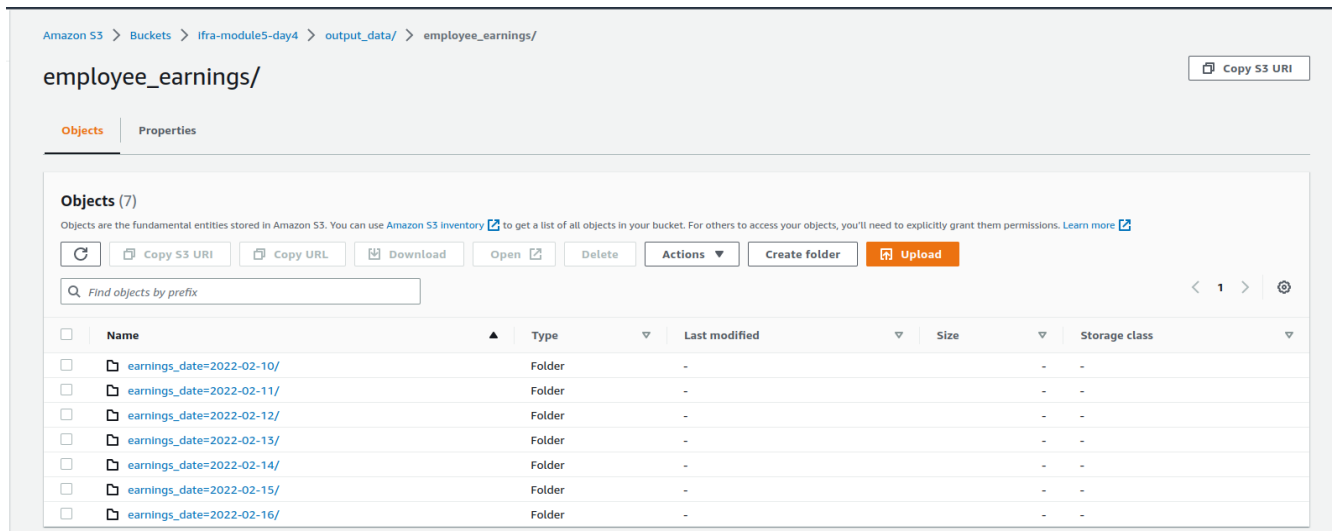
Using the data manipulation tool of your choice (eg. Python) simulate the earnings predictions for 2 more days. Load it to the Data Lake that you've created today (Task 1-2).

Rerun queries from Task 3 and Task 4 and see how the results change with this new data.

Create a new query in Athena that calculates the % change in earnings for every employee from a given day compared to the previous day.

Solution:

Uploaded two new folders to S3 Bucket.



Amazon S3 > Buckets > Ifra-module5-day4 > output_data/ > employee_earnings/

employee_earnings/ [Copy S3 URI](#)

Objects | Properties

Objects (7)

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 Inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

[Refresh](#) [Copy S3 URI](#) [Copy URL](#) [Download](#) [Open](#) [Delete](#) [Actions](#) [Create folder](#) [Upload](#)

<input type="checkbox"/>	Name	Type	Last modified	Size	Storage class
<input type="checkbox"/>	earnings_date=2022-02-10/	Folder	-	-	-
<input type="checkbox"/>	earnings_date=2022-02-11/	Folder	-	-	-
<input type="checkbox"/>	earnings_date=2022-02-12/	Folder	-	-	-
<input type="checkbox"/>	earnings_date=2022-02-13/	Folder	-	-	-
<input type="checkbox"/>	earnings_date=2022-02-14/	Folder	-	-	-
<input type="checkbox"/>	earnings_date=2022-02-15/	Folder	-	-	-
<input type="checkbox"/>	earnings_date=2022-02-16/	Folder	-	-	-

Run the Crawler again:

Query 1 : Query 2 : Query 3 : Query 14 : Query 4 :

```

1 SELECT DISTINCT emp_id, email, office_branch, (date_diff('year', DATE(date_of_birth), current_date)) AS age
2 FROM "ifrasaleem_glue_database"."ifrasaleememployee_earnings"
3 WHERE office_branch IN ('New York', 'Scranton')
4 AND
5 (date_diff('year', DATE(date_of_birth), current_date)) > 30;
6

```

Query 1 : X Query 2 : X **Query 3 : X** Query 4 : X Query 14 : X Query 4 : X + ▾

```
1 SELECT office_branch, MIN(earnings) as min_earnings, MAX(earnings) as max_earnings, AVG(earnings) as avg_earnings, SUM(earnings) as total_earnings, earnings_date
2 FROM "ifrasaleem glue database"."ifrasaleememployee_earnings"
3 GROUP BY office_branch, earnings_date
4 ORDER BY SUM(earnings) desc;
```

Results (28)

Copy

Download results

Q Search rows

< 1 > ⌕

#	office_branch	min_earnings	max_earnings	avg_earnings	total_earnings	earnings_date
1	Nashua	5234	19135	11813.967741935483	366233	2022-02-16
2	Nashua	4101	18006	11617.870967741936	360154	2022-02-15
3	New York	5989	18901	12246.82142857143	342911	2022-02-16
4	New York	4605	19150	11989.5	335706	2022-02-15
5	Scranton	6444	17504	12894.04	322351	2022-02-16
6	Scranton	4521	18219	11056.88	276422	2022-02-15
7	Stanford	7846	18576	12078.9375	193263	2022-02-15
8	Nashua	2098	9728	6099.8387096774195	189095	2022-02-14
9	Nashua	2005	9786	6049.451612903225	187533	2022-02-13
10	Stanford	6063	17919	11706.5625	187305	2022-02-16
11	Nashua	2006	9603	5997.967741935484	185937	2022-02-11
12	New York	2295	9889	6631.285714285715	185676	2022-02-12
13	Nashua	2124	9978	5764.5161290322585	178700	2022-02-12
14	Nashua	2066	9801	5619.903225806452	174217	2022-02-10
15	New York	2040	9954	6109.035714285715	171053	2022-02-14
16	Scranton	2788	9916	6830.6	170765	2022-02-13
17	New York	2141	9462	5998.178571428572	167949	2022-02-11
18	New York	2376	9972	5991.321428571428	167757	2022-02-10
19	New York	2195	9734	5615.535714285715	157235	2022-02-13
20	Scranton	2465	9827	6149.72	153743	2022-02-14

Query 1 : ✕ | Query 1 : ✓ | Query 2 : ✕ | Query 3 : ✓ | Query 14 : ✕ | Query 4 : ✕ | + ▼

```
1 SELECT DISTINCT office_branch, (MAX(avg_earnings.value) - MIN(avg_earnings.value)) as earnings_range
2 FROM (
3 SELECT office_branch as ob, AVG(earnings) AS value FROM "ifrasaleem_glue_database"."ifrasaleememployee_earnings" GROUP BY office_branch, earnings_date
4 ) avg_earnings, "ifrasaleem_glue_database"."ifrasaleememployee_earnings"
5 WHERE office_branch = avg_earnings.ob
6 GROUP BY office_branch;
```

Query results

Query stats

Completed

Time in queue: 150 ms | Run time: 1.042 sec | Data scanned: 6.20 KB

Copy

Download results

Q Search rows

< 1 > ⌕

#	office_branch	earnings_range
1	Stanford	6514.5625
2	Nashua	6194.064516129031
3	New York	6631.285714285715
4	Scranton	7842.720000000001

Task 4:

SQL query

Amazon S3 Select supports only the SELECT SQL command. Using the S3 console, you can extract up to 40 MB of records from an object that is up to 128 MB in size. To work with larger files or more records, use the AWS CLI, AWS SDK, or Amazon S3 REST API. For more complex SQL queries, use Amazon Athena [🔗](#)

Add SQL from templates

Run SQL query

```
1 SELECT *
2 FROM "ifrasaleem_glue_database"."ifrasaleememployee_earnings"/* To create reference point for writing SQL queries, you can display the first 5 records of input data by running the following SQL query: SELECT * FROM s3object s LIMIT 5
3 SELECT * FROM s3object s LIMIT 5
```

Query results

Query results are not available after you choose Close or navigate away. Choose Download results to download a copy of the following query results.

Download results

Status

Successfully returned 5 records in 1063 ms

Bytes returned: 652 B

Raw

Formatted

```
526548,Angelique,K,Goodwin,angelique.goodwin@gmail.com,1964-05-15,2001-03-24,471-57-0359,212-884-7146,akgoodwin,z{d>ez%{.,Nashua,12323
859327,Jeni,S,Shaffer,jeni.shaffer@gmail.com,1962-01-13,2015-12-10,624-85-4146,205-665-7020,jsshaffer,7U56!^!0,Stanford,8720
887387,Donald,T,Farris,donald.farris@bellsouth.net,1958-04-11,1979-11-12,097-02-3315,205-959-7879,dtfarris,rX.F{&}&m&&X,Stanford,9666
779497,Steven,D,Rendon,steven.rendon@gmail.com,1982-04-04,2008-09-18,134-98-6566,217-858-8054,sdrendon,a+2;sx)<G}y,Nashua,9352
896517,Jenell,L,Almanza,jenell.almanza@yahoo.com,1958-07-01,1993-07-14,599-92-7345,314-893-2590,jlaManza,0u7RX{yT,New York,9078
```

SQL query

Amazon S3 Select supports only the SELECT SQL command. Using the S3 console, you can extract up to 40 MB of records from an object that is up to 128 MB in size. To work with larger files or more records, use the AWS CLI, AWS SDK, or Amazon S3 REST API. For more complex SQL queries, use [Amazon Athena](#).

Add SQL from templatesRun SQL query

```
1 SELECT DISTINCT emp_id, email, office_branch, (date_diff('year', DATE(date_of_birth), current_date)) AS age
2 FROM "frasaaleen_glue_database"."frasaaleenemployee_earnings"
3 WHERE office_branch IN ('New York', 'Scranton')
4 AND
5 (date_diff('year', DATE(date_of_birth), current_date)) > 30;
6 -- To create reference point for writing SQL queries, you can display the first 5 records of input data by running the following SQL query: SELECT * FROM s3object s LIMIT 5 */
7 SELECT * FROM s3object s LIMIT 5
```

Query results

Query results are not available after you choose **Close** or navigate away. Choose **Download results** to download a copy of the following query results.

[Download results](#)

Status

Successfully returned 5 records in 1656 ms

Bytes returned: 652 B

RawFormatted

```
526540,Angelique,K,Goodwin,angelique.goodwin@gmail.com,1964-05-15,2001-03-24,471-57-0359,212-884-7146,akgoodwin,z{d>ez%{.0,Nashua,12323
859327,Jeni,S,Shaffer,jeni.shaffer@gmail.com,1962-01-13,2015-12-10,624-85-4146,205-665-7020,jsshaffer,7U56! '10,Stanford,8720
887387,Donald,T,Farris,donald.farris@bellsouth.net,1958-04-11,1979-11-12,097-02-3315,205-959-7879,dtfarris,rx.F{&}&m&&X,Stanford,9666
779497,Steven,D,Rendon,steven.rendon@gmail.com,1982-04-04,2008-09-18,134-98-6566,217-858-0054,sdrendon,a+2;sx}<G}y,Nashua,9352
896517,Jenell,L,Almanza,jenell.almanza@yahoo.com,1958-07-01,1993-07-14,599-92-7345,314-893-2590,jlaImanza,Ou7RX{yT,New York,9078
```

SQL query

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Add SQL from templatesRun SQL query

```
1 SELECT office_branch, MIN(earnings) as min_earnings, MAX(earnings) as max_earnings, AVG(earnings) as avg_earnings, SUM(earnings) as total_earnings, earnings_date
2 FROM "frasaaleen_glue_database"."frasaaleenemployee_earnings"
3 GROUP BY office_branch, earnings_date
4 ORDER BY SUM(earnings) desc;-- To create reference point for writing SQL queries, you can display the first 5 records of input data by running the following SQL query: SELECT * FROM s3object s LIMIT 5 */
5 SELECT * FROM s3object s LIMIT 5
```

Query results

Query results are not available after you choose **Close** or navigate away. Choose **Download results** to download a copy of the following query results.

[Download results](#)

Status

Successfully returned 5 records in 611 ms

Bytes returned: 652 B

RawFormatted

```
526540,Angelique,K,Goodwin,angelique.goodwin@gmail.com,1964-05-15,2001-03-24,471-57-0359,212-884-7146,akgoodwin,z{d>ez%{.0,Nashua,12323
859327,Jeni,S,Shaffer,jeni.shaffer@gmail.com,1962-01-13,2015-12-10,624-85-4146,205-665-7020,jsshaffer,7U56! '10,Stanford,8720
887387,Donald,T,Farris,donald.farris@bellsouth.net,1958-04-11,1979-11-12,097-02-3315,205-959-7879,dtfarris,rx.F{&}&m&&X,Stanford,9666
779497,Steven,D,Rendon,steven.rendon@gmail.com,1982-04-04,2008-09-18,134-98-6566,217-858-0054,sdrendon,a+2;sx}<G}y,Nashua,9352
896517,Jenell,L,Almanza,jenell.almanza@yahoo.com,1958-07-01,1993-07-14,599-92-7345,314-893-2590,jlaImanza,Ou7RX{yT,New York,9078
```

SQL query

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Add SQL from templatesRun SQL query

```
1 SELECT DISTINCT office_branch, (MAX(avg_earnings.value) - MIN(avg_earnings.value)) as earnings_range
2 * FROM (
3 SELECT office_branch as ob, AVG(earnings) AS value FROM "frasaaleen_glue_database"."frasaaleenemployee_earnings" GROUP BY office_branch, earnings_date
4 ) avg_earnings, "frasaaleen_glue_database"."frasaaleenemployee_earnings"
5 WHERE office_branch = avg_earnings.ob
6 GROUP BY office_branch;-- To create reference point for writing SQL queries, you can display the first 5 records of input data by running the following SQL query: SELECT * FROM s3object s LIMIT 5 */
7 SELECT * FROM s3object s LIMIT 5
```

Query results

Query results are not available after you choose **Close** or navigate away. Choose **Download results** to download a copy of the following query results.

[Download results](#)

Status

Successfully returned 5 records in 1100 ms

Bytes returned: 652 B

RawFormatted

```
526540,Angelique,K,Goodwin,angelique.goodwin@gmail.com,1964-05-15,2001-03-24,471-57-0359,212-884-7146,akgoodwin,z{d>ez%{.0,Nashua,12323
859327,Jeni,S,Shaffer,jeni.shaffer@gmail.com,1962-01-13,2015-12-10,624-85-4146,205-665-7020,jsshaffer,7U56! '10,Stanford,8720
887387,Donald,T,Farris,donald.farris@bellsouth.net,1958-04-11,1979-11-12,097-02-3315,205-959-7879,dtfarris,rx.F{&}&m&&X,Stanford,9666
779497,Steven,D,Rendon,steven.rendon@gmail.com,1982-04-04,2008-09-18,134-98-6566,217-858-0054,sdrendon,a+2;sx}<G}y,Nashua,9352
896517,Jenell,L,Almanza,jenell.almanza@yahoo.com,1958-07-01,1993-07-14,599-92-7345,314-893-2590,jlaImanza,Ou7RX{yT,New York,9078
```

Create a new query in Athena that calculates the % change in earnings for every employee from a given day compared to the previous day.

Query 1 : X

Query 1 : X

Query 2 : X

Query 3 : X

Query 14 : X

+

▼

1- WITH earnings_data AS (
2- SELECT emp_id, earnings, earnings_date,
3- LAG(earnings) OVER (PARTITION BY emp_id ORDER BY earnings_date) AS previous_earnings
4- FROM "ifrasaleem_glue_database"."ifrasaleememployee_earnings"
5- WHERE earnings_date IN ('2022-02-13', '2022-02-14')
6-)
7- SELECT emp_id, earnings_date, earnings,
8- ((earnings - previous_earnings) / CAST(previous_earnings AS double)) * 100 AS percentage_change
9- FROM earnings_data
10- WHERE earnings_date = '2022-02-14';
11

Results (100)

CopyDownload results

Q Search rows

< 1 - > @

#	emp_id	earnings_date	earnings	percentage_change
1	149972	2022-02-14	4881	-37.750286953194745
2	174955	2022-02-14	8857	267.6629306766293
3	203380	2022-02-14	7741	-19.6574987026466
4	215719	2022-02-14	6625	-26.576526654106175
5	299088	2022-02-14	4627	-41.80606213054961
6	388558	2022-02-14	2642	-55.951983994664886
7	399707	2022-02-14	4804	-2.456852791878173
8	439483	2022-02-14	4101	19.772196261682243
9	466832	2022-02-14	8708	224.68307233407904
10	500905	2022-02-14	5554	-29.642766658221436
11	501658	2022-02-14	8127	-0.6964809384164222
12	511059	2022-02-14	7454	62.39651416122004
13	550206	2022-02-14	2870	15.400080418174507
14	595558	2022-02-14	3849	-21.175506860536554
15	627298	2022-02-14	2568	-64.16910841356216
16	637407	2022-02-14	4280	-37.81781200058114
17	754455	2022-02-14	9470	106.18332244720226
18	823898	2022-02-14	4977	-13.48861463584217
19	856379	2022-02-14	4383	11.982626469085336