# BTD310- Assignment 3

# Due date – December 7, 2018

Please work in **groups** to complete this assignment. This assignment is worth **5% of the total course grade** and will be evaluated through your written submission. Each day being late will result in 10% mark penalty.

## **Part I**

1. Prepare a list of at least 10 songs, two for each rating and with at least three songs from 2018. For each song, prepare the following items:
2. Song title
3. Artist name
4. Album name
5. Duration
6. Genre
7. Year
8. Link
9. Rating (awful, not bad, good, excellent, outstanding)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Title** | **Artist** | **Album** | **Duration** | **Genre** | **Year** | **Link** | **Rating** |
| 1 | Thank u, next | Ariana Grande | Thank u, next (single) | 3:27 | Pop | 2018 | https://youtu.be/EEhZAHZQyf4 | outstanding |
| 2 | Mo Bamba | Sheck Wes | MUDBOY | 3:04 | Hip-Hop | 2018 | https://youtu.be/VWoIpDVkOH0 | not bad |
| 3 | Taki Taki ft. Selena Gomez, Ozuna, Cardi B | DJ Snake | (single) | 3:50 | Spanish/pop | 2018 | https://youtu.be/ixkoVwKQaJg | good |
| 4 | Happier ft. Bastille | Marshmello | (single) | 3:53 | Dance/Electronic | 2018 | https://youtu.be/m7Bc3pLyij0 | not bad |
| 5 | In My Feelings | Drake | Scorpion | 3:38 | Pop/Hip-Hop | 2018 | https://youtu.be/DRS\_PpOrUZ4 | awful |
| 6 | Nobody | Mitski | Be The Cowboy | 3:13 | Indie | 2018 | https://www.youtube.com/watch?v=qooWnw5rEcI | excellent |
| 7 | Arms around you ft.Maluma & Swae Lee | XXXTENTACION & Lil Pump | (single) | 3:19 | Rap | 2018 | https://youtu.be/BxFvI-zpaRs | awful |
| 8 | Thriller | Michael Jackson | Thriller | 5:57 | Pop | 1982 | https://www.youtube.com/watch?v=xIx\_HbmRnQY | outstanding |
| 9 | We will rock you | Queen | News of the World | 2:02 | Classic Rock | 1977 | https://www.youtube.com/watch?v=-tJYN-eG1zk | excellent |
| 10 | Mr. Brightside | The Killers | Hot Fuss | 3:47 | Alternative/Indie/Rock | 2004 | https://www.youtube.com/watch?v=gGdGFtwCNBE | good |

1. Run the script provided with this assignment to create the SONGS table, and insert sample songs.
2. **(5 marks)** Write a script of ‘INSERT’ statements that inserts your 10 songs into the SONGS table. Save your script in **Asg3\_partI.sql**.

INSERT

INTO Songs VALUES

(

s\_num\_seq.NEXTVAL,

'Thank u, next',

'Ariana Grande',

'(single)',

TO\_DATE('3:27', 'MM:SS'),

'Pop',

2018,

'https://youtu.be/EEhZAHZQyf4',

'outstanding'

);

INSERT

INTO Songs VALUES

(

s\_num\_seq.NEXTVAL,

'Mo Bamba',

'Sheck Wes',

'MUDBOY',

TO\_DATE('3:04', 'MM:SS'),

'Hip-Hop',

2018,

'https://youtu.be/VWoIpDVkOH0',

'not bad'

);

INSERT

INTO Songs VALUES

(

s\_num\_seq.NEXTVAL,

'Taki Taki ft. Selena Gomez, Ozuna, Cardi B',

'DJ Snake',

'(single)',

TO\_DATE('3:50', 'MM:SS'),

'Spanish/Pop',

2018,

'https://youtu.be/ixkoVwKQaJg',

'good'

);

INSERT

INTO Songs VALUES

(

s\_num\_seq.NEXTVAL,

'Happier ft. Bastille',

'Marshmello',

'(single)',

TO\_DATE('3:53', 'MM:SS'),

'Dance/Electro',

2018,

'https://youtu.be/m7Bc3pLyij0',

'not bad'

);

INSERT

INTO Songs VALUES

(

s\_num\_seq.NEXTVAL,

'In My Feelings',

'Drake',

'Scorpion',

TO\_DATE('3:38', 'MM:SS'),

'Pop/Hip-Hop',

2018,

'https://youtu.be/DRS\_PpOrUZ4',

'awful'

);

INSERT

INTO Songs VALUES

(

s\_num\_seq.NEXTVAL,

'Nobody',

'Mitski',

'Be The Cowboy',

TO\_DATE('3:13', 'MM:SS'),

'Indie',

2018,

'https://www.youtube.com/watch?v=qooWnw5rEcI',

'excellent'

);

INSERT

INTO Songs VALUES

(

s\_num\_seq.NEXTVAL,

'Arms around you ft. Maluma ' || '&' || ' Swae Lee',

'XXXTENTACION '|| '&' || ' Lil Pump',

'(single)',

TO\_DATE('3:19', 'MM:SS'),

'Rap',

2018,

'https://youtu.be/BxFvI-zpaRs',

'awful'

);

INSERT

INTO Songs VALUES

(

s\_num\_seq.NEXTVAL,

'Thriller',

'Michael Jackson',

'Thriller',

TO\_DATE('5:57', 'MM:SS'),

'Pop',

1982,

'https://www.youtube.com/watch?v=xIx\_HbmRnQY',

'outstanding'

);

INSERT

INTO Songs VALUES

(

s\_num\_seq.NEXTVAL,

'We will rock you',

'Queen',

'News of the World',

TO\_DATE('2:02', 'MM:SS'),

'Classic Rock',

1977,

'https://www.youtube.com/watch?v=-tJYN-eG1zk',

'excellent'

);

INSERT

INTO Songs VALUES

(

s\_num\_seq.NEXTVAL,

'Mr. Brightside',

'The Killers',

'Hot Fuss',

TO\_DATE('3:47', 'MM:SS'),

'Alternative/Indie/Rock',

2004,

'https://www.youtube.com/watch?v=gGdGFtwCNBE',

'good'

);

## **Part II**

Save all your code for this part in **Asg3\_PartII.sql** and all output in **Asg3\_output.txt**.

**Q1. (10 marks) Cursors with parameters**

Create a PL/SQL block that declares a cursor called C\_RATING with a parameter for selecting all songs with a certain rating level from SONGS. Use a substitution variable B\_RATE for passing a rating level to the cursor and printing the details of all songs with the given rating, as in the sample output.

Use the following to test your code:

DEFINE B\_RATE = excellent

Sample Output:

Title: Rockabye

Artist: Clean Bandit

Album: Rockabye (single)

Rating: excellent

**DECLARE**

**b\_rate songs.s\_rating%TYPE := '&rating';**

**CURSOR c\_rating (**

**rating songs.s\_rating%TYPE**

**) IS SELECT**

**\***

**FROM**

**songs**

**WHERE**

**s\_rating = b\_rate;**

**v\_songs\_record c\_rating%rowtype;**

**BEGIN**

**OPEN c\_rating(b\_rate);**

**LOOP**

**FETCH c\_rating INTO v\_songs\_record;**

**EXIT WHEN c\_rating%notfound;**

**dbms\_output.put\_line('Title: ' || v\_songs\_record.s\_title);**

**dbms\_output.put\_line('Artist: ' || v\_songs\_record.s\_artist);**

**dbms\_output.put\_line('Album: ' || v\_songs\_record.s\_album);**

**dbms\_output.put\_line('Rating: ' || v\_songs\_record.s\_rating);**

**END LOOP;**

**CLOSE c\_rating;**

**END;**

**/**

**Q2. (10 marks) Exceptions**

1. Create a copy of the SONGS table named SEL\_SONGS, populating the table with information from SONG only from a given year. Use the following substitution variable to run your script:

DEFINE B\_YEAR = 2018

**DEFINE B\_YEAR = 2018;**

**CREATE TABLE SEL\_SONGS AS (SELECT \* FROM SONGS WHERE S\_YEAR = 2018);**

1. Write a block that prints out the title, artist, album and rating for all songs in SEL\_SONGS.

Raise an exception if the song is not from the year specified in the substitution variable B\_YEAR. Handle the exception with an appropriate exception handler that prints out

‘ Song #... skipped since not in the specified year’. Use the song’s S\_NUM as the song # in above printed message.

Raise another exception if the song is ‘awful’ or ‘not bad’. Handle the exception with an appropriate exception handler that prints out ‘Song #... skipped since not cool!’.

**DECLARE**

**B\_YEAR EXCEPTION;**

**V\_NUM NUMBER(4);**

**V\_RATE EXCEPTION;**

**BEGIN**

**SELECT S\_YEAR INTO B\_YEAR FROM SEL\_SONGS WHERE B\_YEAR = 2018;**

**IF SQL%FOUND THEN RAISE V\_NUM;**

**DBMS\_OUTPUT.PUT\_LINE ('Song' || V\_NUM ||'skipped since not in the specified year');**

**END IF;**

**EXCEPTION WHEN B\_YEAR THEN**

**RAISE\_APPLICATION\_ERROR ('Song ' || V\_NUM || 'skipped since not cool!');**

**END;**

**/**

1. Test the block with DEFINE B\_YEAR = 2018. You should get the songs from 2018.
2. Test the block with DEFINE B\_YEAR = 2016. You should get an output that skips over all songs that were displayed in part (c). For example (this is just a sample outout):

PL/SQL procedure successfully completed.

Song #2 skipped since not in specified year.

**Q3. (15 marks) Procedures & Functions**

1. Create a procedure, named ***RAND\_SELECT*** with the following parameters:

* An input parameter, N, indicating the number of songs to select,
* Two output parameters, NVA and NVO, to indicate the number of ‘awful’ and ‘outstanding’ songs selected.

In this procedure,

* Create an INDEX BY table named NUM\_TABLE to store a type matching S\_NUM.
* Create a cursor to query all rows of SONGS table.
* LOOP through all rows of above cursor
  + Write the S\_NUM values into consecutive elements in NUM\_TABLE
* Delete all rows in SEL\_SONGS
* In a second loop, LOOP for N times
  + Generate a random number **r** between 1 and the number of values in NUM\_TABLE

Hint 1: To generate an integer between 1 and 1000, you can use:

“select trunc(dbms\_random.value(1,1000)) num from dual;”

Hint 2: NUM\_TABLE.COUNT returns the number of items in the table

* + Use the rth item in the NUM\_TABLE to SELECT the song with that number from the SONGS table. INSERT this song into the SEL\_SONGS table
  + Update the NVA and NVO parameters, if the selected song is awful or outstanding respectively.

CREATE OR REPLACE PROCEDURE rand\_select (N IN NUMBER, NVA OUT NUMBER, NVO OUT NUMBER)

IS

CURSOR c\_songs IS

SELECT \* FROM songs;

TYPE num\_table\_type IS TABLE OF

songs.s\_num%TYPE

INDEX BY PLS\_INTEGER;

num\_table num\_table\_type;

rand NUMBER(100,0);

v\_rating songs.s\_rating%type;

BEGIN

FOR s\_num IN c\_SONGS

LOOP

FETCH c\_songs INTO num\_table;

END LOOP;

DELETE FROM Sel\_songs;

FOR I IN 0..N LOOP

SELECT TRUNC(dbms\_random.VALUE(1,num\_table.COUNT)) NUM INTO rand FROM dual;

INSERT

INTO sel\_songs (SELECT \* FROM SONGS WHERE s\_num = rand);

SELECT s\_rating INTO v\_rating FROM songs WHERE s\_num = rand;

IF v\_rating = 'awful'

THEN

NVA := NVA + 1;

ELSIF v\_rating = 'outstanding'

THEN

NVO := NVO + 1;

End If;

END LOOP;

END;

/

1. Write a PL/SQL code that calls the above procedure to select 3 random songs from SONGS into SEL\_SONGS. Display the songs, and then display the number of ‘awful’ and ‘outstanding’ songs in this set.

DECLARE

num\_a NUMBER;

num\_o Number;

BEGIN

rand\_select(3, num\_a, num\_o);

SELECT \* FROM sel\_songs;

dbms\_output.put\_line('Number of awful songs: ' || num\_a);

dbms\_output.put\_line('Number of outstanding songs: ' || num\_o);

END;

## Part III. Team work

1. Add this declaration on the top of your Asg1.docx file.

We, ------------ (mention your names), declare that the attached assignment is our own work in accordance with the Seneca Academic Policy. No part of this assignment has been copied manually or electronically from any other source (including web sites) **or distributed to other students.**

1. On top of **Asg3\_output.txt**, specify what each member has done towards the completion of this work:

|  |  |  |
| --- | --- | --- |
| Team Member 1 | Team Member 2 | Team Member 3 |
| (make this list as long as necessary) |  |  |

1. Please submit the following files through Blackboard:

* Asg3\_partI.sql
* Asg3\_partII.sql
* Asg3\_output.txt