CMPE 351 - Database Systems

Homework 02
Deadline: 11.12.2020 23.59

This homework is for students
who is registered **CMPE351.01/0101**.

RULES

Submission

- Submit your solution as [name_surname_homework02].ipynb.
- Solution without comments will **not** be evaluated.
- Late submissions will **not** be accepted. Submission system will be closed after deadline.
- Submissions via e-mail will **not** be accepted.
- Plagiarism is strictly prohibited. Submitted codes will be assessed via a plagiarism tool. Involved students will get zero.

QUESTIONS

1. Connect mySQL database by using Python.
2. *(10 points)* Create database and tables as given below by using Python.
   (a) MALL database
   (b) CUSTOMER: `customer_id` *integer*, `name` *varchar*, `lastname` *varchar*, `registration_date` *date*, `score` *integer*
   (c) INVENTORY: `item_id` *integer*, `item_name` *varchar*, `cost` *integer*
   (d) PURCHASE: `customer_id` *integer*, `item_id` *integer*

   Choose primary and foreign keys depending on the relations in MALL database design.
3. *(20 points)* Create arrays of at least 5 different records. Use these arrays to populate each table in the database.
4. *(30 points)* Apply the functions given below and print the results
   - $NEWS \leftarrow \sigma_{score<20}(CUSTOMER)$
   - $LOYALS \leftarrow \sigma_{score>=50}(CUSTOMER)$
   - $RESULT1 \leftarrow \pi_{name,lastname}(LOYALS)$
   - $RESULT2 \leftarrow \pi_{name,lastname}(NEWS) \cup \pi_{name,lastname}(LOYALS)$
   - $RESULT3 \leftarrow \pi(CUSTOMER \times PURCHASE)$
   - $RESULT4 \leftarrow \pi(LOYALS \bowtie_{customer\_id=costomer\_id} PURCHASE)$
5. *(20 points)* Print name and lastname of the customers who spent more than $200 and score is more than 30.
6. *(20 points)* Define Python functions for each table to insert a new record. For example, `def insertCustomer(id, name, lastname, registration, score)`.

Note: Ensure that your programs are fully documented, using comments.