HOMEWORK WEEK 2
(handout for students)

TASK 1 (SQL)

- MySQL Index:

  NOTE: this is a very common question in tech interviews.
  - The most important index types we need to know about are:
    - Single column and multi-column index
    - Composite index
    - Clustered index

  Write definitions for each types and provide an example (you can find examples online, but you need to write them down for each type)

  Add a new index to the 'Sweet' table in Bakery database (any column -explain your choice)

  Add a new index (multi-column) to the table 'Accounts' in the Bank database (explain your choice of columns).

TASK 2 (SQL)

- Study the extra curriculum topics about Triggers and Events (**sql_session6 slide deck marked HOMEWORK SLIDES)**

- Review and run exercises provided to understand how Triggers and Events work (use scripts in your handouts **example_event.sql** and **example_trigger.sql**)

(you do not need to submit anything for this task, but you may come across these topics in the future assessments and interviews)

Question 1

I am building some very high-quality chairs and need exactly four nails for each chair. I've written a program to calculate how many nails I need to buy to build these chairs.

```python
chairs = '15'

nails = 4

total_nails = chairs * nails

message = 'I need to buy {} nails'.format(total_nails)

print(message)
```

When I run the program, it tells me that I need to buy 15151515 nails. This seems like a lot of nails.

Is my program calculating the total number of nails correctly? What is the problem? How do I fix it?

Question 2

I'm trying to run this program, but I get an error. What is the error telling me is wrong? How do I fix the program?

```python
my_name = Penelope

my_age = 29

message = 'My name is {} and I am {} years old'.format(my_name, my_age)

print(message)
```

Question 3

I have a lot of boxes of eggs in my fridge and I want to calculate how many omelettes I can make. Write a program to calculate this.

Assume that a box of eggs contains six eggs and I need four eggs for each omelette, but I should be able to easily change these values if I want. The output should say something like:

"You can make 9 omelettes with 6 boxes of eggs"

Question 4

Complete a series of tasks to format strings

```python
# Task 1 - Replace the (.) character with (!) instead. Output should be "I love coding!"


my_str = "I love coding."


# Type your code here.


print(my_str)
```

```python
# Task 2 - Reassign str so that all of its characters are lowercase.


my_str_1 = "EVERY Exercise Brings Me Closer to Completing my GOALS."


# Type your code here.


print(my_str_1)
```

```python
# Task 3 - Output whether this string starts with an A or not


my_str_2 = "We enjoy travelling"
```

```
# Type your code here.

ans_1 =

print(ans_1)
```

```
# Task4 - What is the length of the given string?
my_str_3="1.458.001"

# Type your code here:
ans_2=
print(ans_2)
```

Question 5

Complete a series of tasks to slice strings

```
# Task 1 - Slice the word so that you get "thon".
wrd="Python"
# Type your answer here.
ans_1=
print(ans_1)
```

```
# Task 2 - Slice the word until "o". (Pyth)
wrd="Python"
# Type your answer here.
```

```
ans_1=

print(ans_1)
```

```
# Task 3 - Now try to get "th" only.

wrd="Python"

# Type your answer here.

ans_1=

print(ans_1)
```

```
# Task 4 - Now slice the word with steps of 2, excluding first and last characters

wrd="Python"

# Type your answer here.

ans_1=

print(ans_1)
```

Question 6

Explain what this program does

```python
for number in range(100):
    output = 'o' * number
    print(output)
```

Question 7

Your boss really likes calculating VAT on their purchases. It is their favourite hobby. They've written this code to calculate VAT and need your help to fix it.

```python
def calculate_vat(amount):

    amount * 1.2

total = calculate_vat(100)

print(total)
```

When your boss runs the program they get the following output:

```
None
```

Your boss expects the program to output the value 120 . What is wrong? How do you fix it?

Question 8

Write a new function to print a 'cashier receipt' output for a shop (any shop – clothes, food, events etc).

It should accept 3 items, then sum them up and print out a detailed receipt with TOTAL.

For example:

Input:

Item_1_name = 'Trainers'

Item_1_price = 50.45

Item_2_name = 'T-shirt

Item_2_price = 12

Output:

Trainers 50.45

T-shirt...........12.00

TOTAL   62.45