THEORY PYTHON

1. What Is Python? What are the benefits of using python?

It's one of the programming languages that is widely used in various fields (like Data Science, Software Engineering, Full Stack etc.). It's relatively easy to learn, it's open source and free, it's close to natural language, extensible and is being object-oriented.

2. What does 'string' method **count()** do, provide an example

It returns a number of values that appear in a string.

example_string = "I like coffee as coffee is great."

print(example_string.count("coffee"))

2

3. What do functions **ord()** and **chr()** do, provide examples

ord() will return integer that represents the Unicode character, for example:

```
ord('z')
```

```
122
```

chr() will work in reverse and will show Unicode character represented by an integer:

```
chr(90)
```

```
'Z'
```

4. Given string ' *2020-11-10_sales.csv* ' how can I get *'2020-11-10_sales'* using slicing ?

'2020-11-10_sales.csv'[:-4]

5. What is the difference between List and Tuple data types in Python?

Lists are mutable (changeable), whilst tuples are not.

6. What is the difference between List methods **append()** and **extend()** , provide examples.

Methond append() will add a single element to the list, whilst extend() can add multiple. For example:

```
example_list = [1,2,3,4,5]
example_list.append(6)
print(example_list)
```

```
[1, 2, 3, 4, 5, 6]
```

```
another_list = [8,9,10]
example_list.extend(another_list)
print(example_list)
```

```
[1, 2, 3, 4, 5, 6, 8, 9, 10]
```

7. What does 'infinite loop' mean and how to avoid it?

If there is no way for a loop to end, it will be an infinite loop. To avoid it one must make sure that the condition defined in the loop becomes satisfied.

8. What does function 'parameters' and function 'arguments' mean?

Function parameters are variables listed in the function's definition, whilst function arguments are variables passed to the function.

9. How to add a new key, value pair to a dictionary, provide examples.
example_dict = { 'a': 1, 'b': 2, 'c': 3}
example_dict['d'] = 4
or
example_dict.update({'e':5})

10. Place these data types into one of the two categories
(MUTABLE & IMMUTABLE): Bool, Int, List, Tuple, Str, Set, Dict

MUTABLE: list, dictionary, set

IMMUTABLE: bool, int, tuple, str

MYSQL Theory:

1. What is MySQL?
It is relational database management system, that is open source.

2. Difference between CHAR and VARCHAR?
CHAR – fixed length.
VARCHAR – variable length.

3. What do you mean by % and _ in the LIKE statement?
% <- any number of any characters
_ – one of any characters

4. What is the difference between WHERE and HAVING clause?
WHERE – specifies a condition to filter records
HAVING – used when column operations are performed

5. What does CHECK constraint do, give an example?

6. Name ANY 3 types of JOINs with simple examples (you can draw circle diagrams
or explain?

7. What are COMMIT and ROLLBACK in transaction?
COMMIT will allow the transaction to be applied to database, ROLLBACK will discard the changes made during the transaction.

8. What is the difference between these aggregate functions: COUNT() and SUM()?
COUNT() will count the number of occurrences, SUM() will sum the values of columns.

9. What do you mean by Stored Procedures? How do we use it?

10. What is the difference between clustered and non-clustered indexes?