

## assignment 2

August 7, 2023

- [ ]: [1.] Using hashtag at the beginning of each line of the comment.  
There are 3 different types of comments:  
(1) Single line comments.  
(2) Multi line comments.  
(3) Docstring comments.
- (1) Single line comments:- Single line comments start with hash symbol [#] and extend to the end of the line. They are used to add comments on a same line as a statement of a code or to add comments on a separate line.
- (2) Multi line comments:- Multi line comments are used to documents that span multiple lines. they start with end with three quotes ('' or ''').
- (3) Docstring comments:- Docstring comments are used to document modules, methods, classes, functions, and objects. Using three quotation marks(" or ").
- [ ]: [2.] Variables in python are used to store values that can be used later in program. A variable is created when a value is assigned to it. Python does not require declaring a variable with a specific data type. instead, the data type of the variable is determined by the value assigned to it.
- There are different ways to declare and assign values to variable in python.  
One way is to directly declare the variable and assign a value using equal sign (=). For example: x = 5, assigns value 5 to the variable x.
- [ ]: [3.] In Python, type conversion is the process of converting one data type to another. There are 2 types of type conversion in python:  
(a) Implicit type conversion and (b) Explicit type of conversion.
- Implicit type of conversion is a type of type conversion in which python interpreter automatically converts one data type to another without any user involvement.

Explicit `type` of conversion, on the other hand, requires user involvement, where the user converts one data `type` to another according to their own need using built-in functions such as `'str()'`, `'int()'`, `'float()'`, etc.

```
[ ]: [4.] To write and execute a Python script from the command line, follow this steps:
      1. Open a text editor and write your python code. Save the file with a.py extension.
      2. Open the terminal or command prompt.
      3. Navigate to the directory where your python file is saved using the 'cd' command.
      4. To run the python script, type 'python' followed by the name of your python file and press enter. For example:- if your file is named 'hello.py', type 'python hello.py' and press enter.
      5. The python interpreter will execute your code and display the output in the terminal.
```

```
[3]: [5.] my_list = [1,2,3,4,5]
      sub_list = my_list[1:3]
      print(sub_list)
```

[2, 3]

```
[ ]: [6.] In mathematics, a complex number is a number than can be expressed in the form 'a + bi', where 'a' and 'b' are real numbers and 'i' is the imaginary unit, which is defined as the square root of -1. Complex numbers are an extension of the real numbers system and are used in many areas of mathematics, including algebra, calculus, and geometry.
```

In python, `complex` numbers are represented using the `'complex'` built-in type. A `complex` number can be created directly using the syntax `'a +bj'`, where `'a'` and `'b'` are real numbers and `'j'` is imaginary units. For example: `'3+2j'` is a complex number with a real part of 3 and an imaginary part of 2. Alternatively, you can use the `'complex(3,2)'` is equivalent to `'3+2j'`. The `type()` function can be used to check the data type of a variable, which will return `<class 'complex'>` for a `complex` number.

```
[ ]: [7.] In python, declaring a variable and assigning a value to it is a simple process. Unlike some other programming languages, python does not require variables to be declared before they can be used. To declare a variable named 'age' and assign the value '25' to it, you can simply use the following code:
```

This code creates a variable

```
[4]: age = 25
```

```
[5]: age
```

```
[5]: 25
```

```
[2]: [8.] price = 99.9  
      print(type(price))
```

```
<class 'float'>
```

```
[1]: [9.] name = "mehak jain"  
      print(name)
```

```
mehak jain
```

```
[3]: [10.] string = "Hello, World!"  
      substring = string[7:12]  
      print(substring)
```

```
World
```

```
[4]: [11.] is_student = True  
      print(is_student)
```

```
True
```

```
[ ]:
```