**Python Basic - 1**

**Q.1. What are keywords in python? Using the keyword library, print all the python keywords.**

Keywords in python are reserved words that have predefined meaning or functionalities, they can not be used as variable name or function name.

import keyword

print(keyword.kwlist)

['False', 'None', 'True', 'and', 'as', 'assert', 'async', 'await', 'break', 'class', 'continue', 'def', 'del', 'elif', 'else', 'except', 'finally', 'for', 'from', 'global', 'if', 'import', 'in', 'is', 'lambda', 'nonlocal', 'not', 'or', 'pass', 'raise', 'return', 'try', 'while', 'with', 'yield']

**Q.2. What are the rules to create variables in python?**

1. Variable names must start with letter or underscore \_
2. Variables names can contain numbers letters underscores but they can not contain special characters such as $, (, \*, %, etc.
3. Variables names are case sensitive
4. Variables names should be descriptive
5. Python keywords reserved can not be used to rename variable

**Q.3. What are the standards and conventions followed for the nomenclature of variables in python to improve code readability and maintainability?**

1. Names are written in small letters and snake case pattern followed
2. Use of descriptive names
3. Avoiding single character name
4. Avoid reserved words
5. Maintaining consistency throughout the codebase, similar pattern

**Q.4 What will happen if a keyword is used as a variable name? For what purpose def keyword is used? What is the operation of this special character ‘\’?**

1. If keyword is used as a variable name then it will give syntax error.
2. Def is used to define the function
3. \ is used as an escape character. It is used to indicate that character following \ should be treated specially rather than its literal meaning,

E.g \n : used to print on new line

\t: used to add tab in statement

print(“he said, \“Hello!\””) => output will be **he said, “Hello!”**

**Q.5 Give an example of the following conditions:**

**Homogeneous list Heterogeneous set Homogeneous tuple**

Homogeneous list: [4,5,6]

Lists are ordered and mutable

Heterogenous set: {4, ‘apple’, 3.24, True}

Sets are unordered and mutable

Homogenous tuple: (‘ram’, ‘shyam’)

Tuples are orders and immutable

**q.6 Explain the mutable and immutable data types with proper explanation & examples.**

**Mutable data types:**

* **e.g lists, sets, dictionaries**
* **Values can be changed, allow in place modifications**

#mutable list

x = [2,3,4]

x[1] = 6

print(x)

#o/p: [2,6,4]

#here 3 from list gets replaced with 6

#mutable dictionary

my\_dict = {'name':'pritam', 'age': 25}

my\_dict['age'] = 32

print(my\_dict)

#o/p: {'name': 'pritam', 'age': 32}

# here value for age key got changed to 32

**Immutable data types:**

* **e.g int, float, str, tuples**
* **Values can not be changed after creation**
* **Do not allow in place modifications, new object gets created with updated values**

**Write a code to create the given structure using only for loop.**

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rows = 5

for i in range(rows):

for j in range(rows - i - 1):

print(" ", end="")

for k in range(2 \* i + 1):

print("\*", end="")

print()

**Q.10. Write a code to create the given structure using while loop.**

rows = 5

spaces = 0

count = 9

while rows > 0:

i = spaces

while i > 0:

print(" ", end="")

i -= 1

j = count

while j > 0:

print("|", end="")

j -= 1

print()

spaces += 1

count -= 2

rows -= 1