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

import keyword

for keyword in keyword.kwlist:

print(keyword)

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?

Variable names must start with a letter or an underscore.

Variable names cannot start with a number.

Variable names can only contain letters, numbers, and underscores.

Variable names cannot be the same as a Python keyword.

Variable names are case sensitive.

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

Use descriptive names.

Use consistent casing

Use underscores to separate words.

Avoid using special characters.

Avoid using keywords.

Q.4. What will happen if a keyword is used as a variable name?

If a keyword is used as a variable name, the Python interpreter will raise a syntax error.

Q.5. For what purpose def keyword is used?

The def keyword is used to define a function in Python.

Q.6. What is the operation of this special character ‘\’?

In general, the backslash is used to escape special characters. This means that the character that follows the backslash is interpreted literally, even if it is a special character.

Q.7. Give an example of the following conditions:

(i) Homogeneous list

A homogeneous list is a list that contains elements of the same data type. For example, the following list is homogeneous because it contains only strings:

list\_of\_strings = ["apple", "banana", "cherry"]

(ii) Heterogeneous set

A heterogeneous set is a set that contains elements of different data types. For example, the following set is heterogeneous because it contains strings, integers, and floats:

set\_of\_heterogeneous\_elements = {"apple", 10, 3.14}

(iii) Homogeneous tuple

A homogeneous tuple is a tuple that contains elements of the same data type. For example, the following tuple is homogeneous because it contains only integers:

tuple\_of\_integers = (1, 2, 3, 4)

Q.8. Explain the mutable and immutable data types with proper explanation & examples.

In Python, there are two types of data types: mutable and immutable. Mutable data types can be changed after they are created, while immutable data types cannot.

Mutable data types

List: A list is a mutable data type that can store a collection of objects. Lists are created using square brackets [].

Dictionary: A dictionary is a mutable data type that stores a collection of key-value pairs. Dictionaries are created using curly braces {}.

Set: A set is a mutable data type that stores a collection of unique objects. Sets are created using the set() function.

Immutable data types

String: A string is an immutable data type that stores a sequence of characters. Strings are created using double quotes "" or single quotes ''.

Integer: An integer is an immutable data type that stores a whole number. Integers are created using the int() function.

Float: A float is an immutable data type that stores a floating-point number. Floats are created using the float() function.

Boolean: A boolean is an immutable data type that stores a value of either True or False. Booleans are created using the True and False keywords.

Examples

Python

# Mutable list

my\_list = [1, 2, 3]

my\_list[0] = 4

# Immutable string

my\_string = "Hello, world!"

# my\_string[0] = "H" # This will raise an error

# Immutable integer

my\_integer = 10

# my\_integer = 20 # This will raise an error

Q.9. Write a code to create the given structure using only for loop.

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for i in range(5):

print("\*" \* (i + 1))

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

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i = 0

while i < 10:

print("| " \* i)

i += 1