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LAB ASSIGNMENT-2

Q.1 Create an empty object. Display it's data type.

Source Code:-

a={}

print("The datatype of given empty object is:",type(a))

Output:-

```
main.py                    [ ]  G   Save   Run      Shell

1  #Created by Saloni Yadav                           The datatype of given empty object a is: <class 'dict'>
2  a={}                                               The datatype of given empty object b is: <class 'list'>
3  b=[]                                               > |
4  print("The datatype of given empty object a is:",type(a))
5  print("The datatype of given empty object b is:",type(b))
6
7
```

Q.2 Write a Python program which add five complex number. Display the sum.

Source Code:-

complex_num1 = 5 + 7j

complex_num2 = 2 - 2j

complex_num3 = -9 + 5j

complex_num4 = 2 + 7j

complex_num5 = 1 - 5j

sum_complex = complex_num1 + complex_num2 + complex_num3 + complex_num4 + complex_num5

Display the sum

print("Sum of given complex numbers:", sum_complex)

Output:-

```
main.py                    [ ]  G   Save   Run      Shell

1  complex_num1 = 5 + 7j                              Sum of given complex numbers: (1+12j)
2  complex_num2 = 2 - 2j                              >
3  complex_num3 = -9 + 5j
4  complex_num4 = 2 + 7j
5  complex_num5 = 1 - 5j
6  sum_complex = complex_num1 + complex_num2 + complex_num3 +
       complex_num4 + complex_num5
7  # Display the sum
8  print("Sum of given complex numbers:", sum_complex)
9  |
```

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Q.3 Write a python program to create the complex numbers from the following integers:

i) a = 10

ii) a =5 b=-2

iii) a = 3.5 b = 6.4

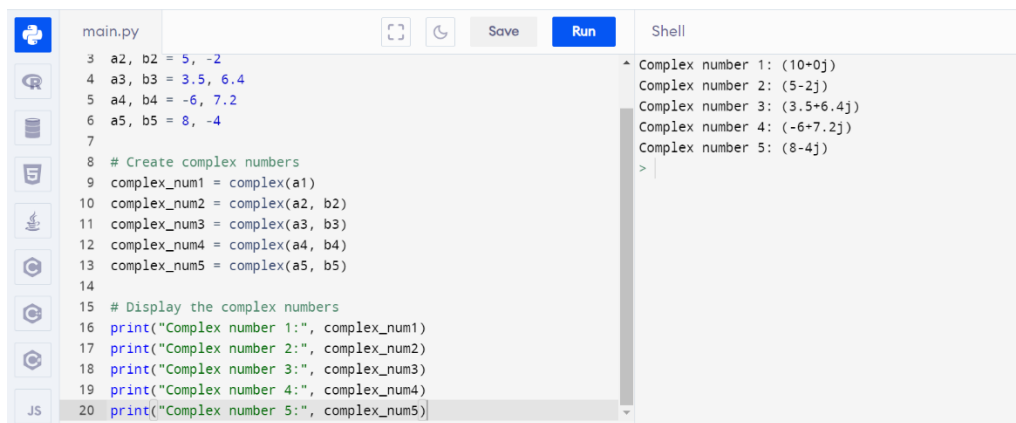**iv) a = -6 b =7.2**

v) a =8 b =-4

Source Code:-

```
# Define the integers
a1 = 10
a2, b2 = 5, -2
a3, b3 = 3.5, 6.4
a4, b4 = -6, 7.2
a5, b5 = 8, -4
# Create complex numbers
complex_num1 = complex(a1)
complex_num2 = complex(a2, b2)
complex_num3 = complex(a3, b3)
complex_num4 = complex(a4, b4)
complex_num5 = complex(a5, b5)
# Display the complex numbers
print("Complex number 1:", complex_num1)
print("Complex number 2:", complex_num2)
print("Complex number 3:", complex_num3)
print("Complex number 4:", complex_num4)
print("Complex number 5:", complex_num5)
```

Output:-

Q.4 Write a python program to convert binary number, octal number and hexadecimal number into an integer number. Take five examples of each number.

Source Code:-

Binary to Integer conversion

binary_examples = ['101', '1010', '1100', '100110', '111']

integer_from_binary = [int(binary, 2) for binary in binary_examples]

Octal to Integer conversion

octal_examples = ['2', '57', '17', '444', '764']

integer_from_octal = [int(octal, 8) for octal in octal_examples]

Hexadecimal to Integer conversion

hexadecimal_examples = ['3B', '5A', '4C', '7D', 'A11']

integer_from_hexadecimal = [int(hexadecimal, 16) for hexadecimal in hexadecimal_examples]

Display the results

print("Binary to Integer:", integer_from_binary)

print("Octal to Integer:", integer_from_octal)

print("Hexadecimal to Integer:", integer_from_hexadecimal)

Output:-

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```
in.py                                    Save    Run        Shell

#Created by Saloni Yadav                            Binary to Integer: [5, 10, 12, 38, 7]
# Binary to Integer conversion                      Octal to Integer: [2, 47, 15, 292, 500]
binary_examples = ['101', '1010', '1100', '100110', '111']   Hexadecimal to Integer: [59, 90, 76, 125, 2577]
integer_from_binary = [int(binary, 2) for binary in binary_examples]  > |
# Octal to Integer conversion
octal_examples = ['2', '57', '17', '444', '764']
integer_from_octal = [int(octal, 8) for octal in octal_examples]
# Hexadecimal to Integer conversion
hexadecimal_examples = ['3B', '5A', '4C', '7D', 'A11']
integer_from_hexadecimal = [int(hexadecimal, 16) for hexadecimal in
    hexadecimal_examples]
# Display the results
print("Binary to Integer:", integer_from_binary)
print("Octal to Integer:", integer_from_octal)
print("Hexadecimal to Integer:", integer_from_hexadecimal)
```

Q.5 Write a python program to convert string into decimal number system by using the command int(string, base). Take five examples of each number system.

Source Code:-

#Created by Saloni Yadav

binary_examples = ['1101', '10101', '11100', '100110', '111111']

decimal_from_binary = [int(binary, 2) for binary in binary_examples]

octal_examples = ['25', '77', '123', '456', '765']

decimal_from_octal = [int(octal, 8) for octal in octal_examples]

hexadecimal_examples = ['1A', '2F', '4C', '7D', 'A1']

decimal_from_hexadecimal = [int(hexadecimal, 16) for hexadecimal in hexadecimal_examples]

Display the results

print("Decimal from Binary:", decimal_from_binary)

print("Decimal from Octal:", decimal_from_octal)

print("Decimal from Hexadecimal:", decimal_from_hexadecimal)

Output:-

```
main.py                                    Save    Run    Shell

 1  #Created by Saloni Yadav                               Decimal from Binary: [13, 21, 28, 38, 63]
 2  binary_examples = ['1101', '10101', '11100', '100110', '111111']   Decimal from Octal: [21, 63, 83, 302, 501]
 3  decimal_from_binary = [int(binary, 2) for binary in binary_examples]   Decimal from Hexadecimal: [26, 47, 76, 125, 161]
 4  octal_examples = ['25', '77', '123', '456', '765']        >
 5  decimal_from_octal = [int(octal, 8) for octal in octal_examples]
 6  hexadecimal_examples = ['1A', '2F', '4C', '7D', 'A1']
 7  decimal_from_hexadecimal = [int(hexadecimal, 16) for hexadecimal in
       hexadecimal_examples]
 8  # Display the results
 9  print("Decimal from Binary:", decimal_from_binary)
10  print("Decimal from Octal:", decimal_from_octal)
11  print("Decimal from Hexadecimal:", decimal_from_hexadecimal)
```

Q.6 convert a decimal number into binary, octal and hexadecimal number system. Solve five examples of each number system.

Source Code:-

Decimal to Binary conversion

decimal_examples = [10, 12, 94, 125, 300]

binary_from_decimal = [bin(decimal)[2:] for decimal in decimal_examples]

Decimal to Octal conversion

octal_from_decimal = [oct(decimal)[2:] for decimal in decimal_examples]

Decimal to Hexadecimal conversion

hexadecimal_from_decimal = [hex(decimal)[2:].upper() for decimal in decimal_examples]

Display the results

print("Binary from Decimal:", binary_from_decimal)

print("Octal from Decimal:", octal_from_decimal)

print("Hexadecimal from Decimal:", hexadecimal_from_decimal)

Output:-

```
main.py                                    Save    Run    Shell

 1  #Created by Saloni Yadav                               Binary from Decimal: ['1010', '1100', '1011110', '1111101',
 2  # Decimal to Binary conversion                            '100101100']
 3  decimal_examples = [10, 12, 94, 125, 300]              Octal from Decimal: ['12', '14', '136', '175', '454']
 4  binary_from_decimal = [bin(decimal)[2:] for decimal in     Hexadecimal from Decimal: ['A', 'C', '5E', '7D', '12C']
       decimal_examples]                                   >
 5  # Decimal to Octal conversion
 6  octal_from_decimal = [oct(decimal)[2:] for decimal in
       decimal_examples]
 7  # Decimal to Hexadecimal conversion
 8  hexadecimal_from_decimal = [hex(decimal)[2:].upper() for
       decimal in decimal_examples]
 9  # Display the results
10  print("Binary from Decimal:", binary_from_decimal)
11  print("Octal from Decimal:", octal_from_decimal)
12  print("Hexadecimal from Decimal:", hexadecimal_from_decimal)
```
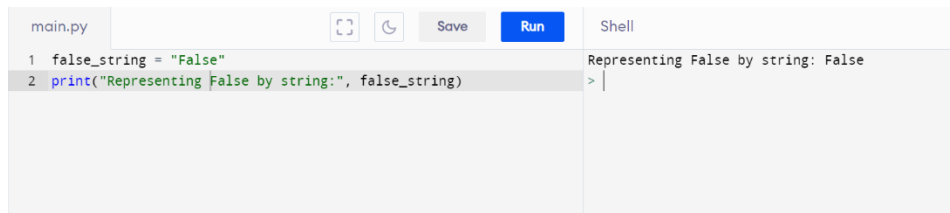
Q.7 Write a python program to represent False by a string.

Source Code:-

false_string = "False"

print("Representing False by string:", false_string)

Output:-

```
main.py                          Save   Run        Shell
1  false_string = "False"                          Representing False by string: False
2  print("Representing False by string:", false_string)   > |
```

Q.8 Write a python program to display the output of the following expression

i) True = True

ii) True + False

iii) True – True

iv) True – True

Source Code:-

ii) True + False

result_ii = True + False

iii) True - True

result_iii = True - True

iv) True - True

result_iv = True - True

Display the results

print("Result i: (True = True)This is not allowed as it tries to assign True to True, which is a keyword.So it will give error.")

print("Result ii:", result_ii)

print("Result iii:", result_iii)

print("Result iv:", result_iv)

Output:-

```
#Created by Saloni Yadav
# ii) True + False
result_ii = True + False
# iii) True - True
result_iii = True - True
# iv) True - True
result_iv = True - True
# Display the results
print("Result i: (True = True)This is not allowed as it tries to
    assign True to True, which is a keyword.So it will give error.")
print("Result ii:", result_ii)
print("Result iii:", result_iii)
print("Result iv:", result_iv)
```

Shell

```
Result i: (True = True)This is not allowed as it tries to assign True to
    True, which is a keyword.So it will give error.
Result ii: 1
Result iii: 0
Result iv: 0
>
```