

Python

RollNo: SCOD09

1. Write a program by using basic concepts like input, output, variable, keywords, and identifiers.

Code:

```
print("Welcome to the Beginner Python Program!")

name = input("Enter your name: ")
age = input("Enter your age: ")
city = input("Enter the city you live in: ")
hobby = input("Enter your favorite hobby: ")
food = input("Enter your favorite food: ")

print("\nHere is the information you entered:")
print("Name:", name)
print("Age:", age)
print("City:", city)
print("Hobby:", hobby)
print("Favorite Food:", food)

print("\nSummary:")
print(name, "is", age, "years old, lives in", city + ", enjoys", hobby + ", and loves eating", food + ".")
```

Output:-

```
Welcome to the Beginner Python Program!
Enter your name: Ali Shaikh
Enter your age: 325
Enter the city you live in: pune
Enter your favorite hobby: ok
Enter your favorite food: ok

Here is the information you entered:
Name: Ali Shaikh
Age: 325
City: pune
Hobby: ok
Favorite Food: ok

Summary:
Ali Shaikh is 325 years old, lives in pune, enjoys ok, and loves eating ok.

...Program finished with exit code 0
Press ENTER to exit console.
```

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2. Write a program to demonstrate the of arithmetic operators

Code:-

```
num1 = float(input("Enter the first number: "))  
num2 = float(input("Enter the second number: "))  
  
addition = num1 + num2  
subtraction = num1 - num2  
multiplication = num1 * num2  
division = num1 / num2  
floor_division = num1 // num2  
modulus = num1 % num2  
exponent = num1 ** num2  
  
print("Addition:", addition)  
print("Subtraction:", subtraction)  
print("Multiplication:", multiplication)  
print("Division:", division)  
print("Floor Division:", floor_division)  
print("Modulus:", modulus)  
print("Exponent:", exponent)
```

Output:-

```
Enter the first number: 12  
Enter the second number: 33  
Addition: 45.0  
Subtraction: -21.0  
Multiplication: 396.0  
Division: 0.36363636363636365  
Floor Division: 0.0  
Modulus: 12.0  
Exponent: 4.101862702460022e+35  
  
...Program finished with exit code 0  
Press ENTER to exit console.
```

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3. Write a program to demonstrate working of control structures.

Code:-

```
number = int(input("Enter a number: "))
if number > 0:
    print("The number is positive.")
elif number < 0:
    print("The number is negative.")
else:
    print("The number is zero.")

print("\nCounting from 1 to 5 using for loop:")
for i in range(1, 6):
    print(i)

print("\nCounting from 5 down to 1 using while loop:")
count = 5
while count > 0:
    print(count)
    count -= 1
```

Output:-

```
Enter a number: 12
The number is positive.

Counting from 1 to 5 using for loop:
1
2
3
4
5

Counting from 5 down to 1 using while loop:
5
4
3
2
1

...Program finished with exit code 0
Press ENTER to exit console.
```

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4. Write a program to demonstrate working of different types of functions

Code:-

```
# Function with no parameters and no return value
def greet():
    print("Hello! Welcome to the function demo.")

# Function with parameters but no return value
def add_numbers(a, b):
    print("Sum:", a + b)

# Function with parameters and a return value
def multiply_numbers(a, b):
    return a * b

# Function with default parameter
def greet_person(name="Friend"):
    print("Hello,", name)

# Function with keyword arguments
def describe_person(name, age):
    print(name, "is", age, "years old.")

# Calling the functions
greet()
add_numbers(5, 3)
result = multiply_numbers(4, 6)
print("Multiplication Result:", result)
greet_person()
greet_person("Alice")
describe_person(age=25, name="Bob")
```

Output:

```
Hello! Welcome to the function demo.
Sum: 8
Multiplication Result: 24
Hello, Friend
Hello, Alice
Bob is 25 years old.

...
...Program finished with exit code 0
Press ENTER to exit console.
```

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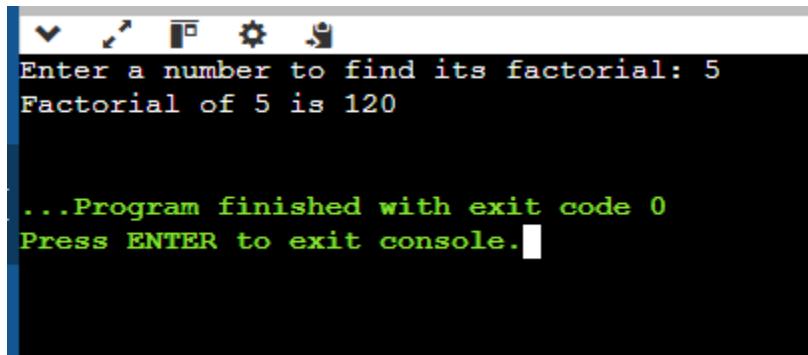
5. Write a program to demonstrate working of recursion.

Code:-

```
def factorial(n):
    if n == 0 or n == 1:
        return 1
    else:
        return n * factorial(n - 1)

num = int(input("Enter a number to find its factorial: "))
result = factorial(num)
print("Factorial of", num, "is", result)
```

Output:-



The screenshot shows a terminal window with a dark background and light-colored text. At the top, there are several small icons. Below them, the text "Enter a number to find its factorial: 5" is displayed in white. The next line shows the result "Factorial of 5 is 120" in white. At the bottom of the window, there is a message in green text: "...Program finished with exit code 0" followed by "Press ENTER to exit console." A small white rectangular cursor is visible at the end of the last line.

6. Write a program to perform different operations on list: i. Append ii. Extend iii. Insert iv. Remove v.

Pop vi. Slice

Code:-

```
# Create a list
my_list = [1, 2, 3, 4, 5]
print("Original List:", my_list)

# i. Append - add an element at the end
my_list.append(6)
print("After append(6):", my_list)

# ii. Extend - add multiple elements at the end
my_list.extend([7, 8])
print("After extend([7, 8]):", my_list)

# iii. Insert - insert an element at a specific position
my_list.insert(2, 10) # insert 10 at index 2
print("After insert(2, 10):", my_list)

# iv. Remove - remove a specific element
my_list.remove(4)
print("After remove(4):", my_list)

popped_element = my_list.pop()
print("After pop():", my_list)
print("Popped Element:", popped_element)

sliced_list = my_list[1:4] # elements from index 1 to 3
print("Sliced List (index 1 to 3):", sliced_list)
```

Output:-

```
Original List: [1, 2, 3, 4, 5]
After append(6): [1, 2, 3, 4, 5, 6]
After extend([7, 8]): [1, 2, 3, 4, 5, 6, 7, 8]
After insert(2, 10): [1, 2, 10, 3, 4, 5, 6, 7, 8]
After remove(4): [1, 2, 10, 3, 5, 6, 7, 8]
After pop(): [1, 2, 10, 3, 5, 6, 7]
Popped Element: 8
Sliced List (index 1 to 3): [2, 10, 3]

...
...Program finished with exit code 0
Press ENTER to exit console.
```

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7. Write a program to perform different operations on set: i. Update ii. Remove the element iii. Clear iv. Pop

Code:-

```
# Create a set
my_set = {1, 2, 3, 4, 5}
print("Original Set:", my_set)

# i. Update - add multiple elements to the set
my_set.update([6, 7, 8])
print("After update([6, 7, 8]):", my_set)

# ii. Remove - remove a specific element
my_set.remove(3)
print("After remove(3):", my_set)

# iv. Pop - remove and return an arbitrary element
popped_element = my_set.pop()
print("After pop():", my_set)
print("Popped Element:", popped_element)
```

Output:-

```
Original Set: {1, 2, 3, 4, 5}
After update([6, 7, 8]): {1, 2, 3, 4, 5, 6, 7, 8}
After remove(3): {1, 2, 4, 5, 6, 7, 8}
After pop(): {2, 4, 5, 6, 7, 8}
Popped Element: 1

...Program finished with exit code 0
Press ENTER to exit console.□
```

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8. Write a program to perform different operations on tuple: i. Accessing ii. Concatenation iii. Slicing iv.

Deleting

Code:-

```
# Create a tuple
my_tuple = (1, 2, 3, 4, 5)
print("Original Tuple:", my_tuple)

# i. Accessing - access elements using index
print("First element:", my_tuple[0])
print("Last element:", my_tuple[-1])

# ii. Concatenation - combine two tuples
new_tuple = my_tuple + (6, 7, 8)
print("After concatenation:", new_tuple)

# iii. Slicing - get a part of the tuple
sliced_tuple = my_tuple[1:4] # elements from index 1 to 3
print("Sliced Tuple (index 1 to 3):", sliced_tuple)

# iv. Deleting - delete the entire tuple
del my_tuple
# print(my_tuple) # This will cause an error because the tuple is deleted
```

Output:-

```
Original Tuple: (1, 2, 3, 4, 5)
First element: 1
Last element: 5
After concatenation: (1, 2, 3, 4, 5, 6, 7, 8)
Sliced Tuple (index 1 to 3): (2, 3, 4)

...Program finished with exit code 0
Press ENTER to exit console.
```

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9. Write a program to demonstrate the working of dictionary.

Code:-

```
# Create a dictionary
my_dict = {
    "name": "Alice",
    "age": 25,
    "city": "New York"
}
print("Original Dictionary:", my_dict)

# Accessing elements
print("Name:", my_dict["name"])
print("Age:", my_dict.get("age"))

# Adding new element
my_dict["profession"] = "Engineer"
print("After adding profession:", my_dict)

my_dict["age"] = 26
print("After updating age:", my_dict)

my_dict.pop("city")
print("After removing city:", my_dict)

print("Looping through dictionary:")
for key, value in my_dict.items():
    print(key, ":", value)

my_dict.clear()
print("After clearing dictionary:", my_dict)
```

Output:-

```
Original Dictionary: {'name': 'Alice', 'age': 25, 'city': 'New York'}
Name: Alice
Age: 25
After adding profession: {'name': 'Alice', 'age': 25, 'city': 'New York', 'profession': 'Engineer'}
After updating age: {'name': 'Alice', 'age': 26, 'city': 'New York', 'profession': 'Engineer'}
After removing city: {'name': 'Alice', 'age': 26, 'profession': 'Engineer'}
Looping through dictionary:
name : Alice
age : 26
profession : Engineer
After clearing dictionary: {}

...Program finished with exit code 0
Press ENTER to exit console.
```

10. Write a program demonstrates various operations on strings: i. Slicing ii. Concatenating iii. Finding the length of the string iv. Converting the string to uppercase and lowercase v. Replacing a substring with another substring vi. Splitting the string into a list of substrings.

Code:-

```
my_string = "Hello, Python Programming!"  
print("Original String:", my_string)  
  
sliced_string = my_string[7:13] # characters from index 7 to 12  
print("Sliced String:", sliced_string)  
  
new_string = my_string + " Let's learn."  
print("After Concatenation:", new_string)  
  
length = len(my_string)  
print("Length of the string:", length)  
  
print("Uppercase:", my_string.upper())  
print("Lowercase:", my_string.lower())  
  
replaced_string = my_string.replace("Python", "Java")  
print("After Replacing:", replaced_string)  
  
split_list = my_string.split()  
print("Split into list:", split_list)
```

Output:-

```
Original String: Hello, Python Programming!  
Sliced String: Python  
After Concatenation: Hello, Python Programming! Let's learn.  
Length of the string: 26  
Uppercase: HELLO, PYTHON PROGRAMMING!  
Lowercase: hello, python programming!  
After Replacing: Hello, Java Programming!  
Split into list: ['Hello,', 'Python', 'Programming!']  
  
...Program finished with exit code 0  
Press ENTER to exit console.
```

11. Write a program to demonstrate different operations on file: i. Create ii. Open iii. Read iv. Write v.

Update vi. Delete

Code:-

```
import os
file = open("example.txt", "w")
file.write("This is the first line.\n")
file.write("This is the second line.\n")
file.close()
print("File created and written successfully.")
file = open("example.txt", "r")
content = file.read()
file.close()
print("\nContent of the file:")
print(content)
file = open("example.txt", "w")
file.write("This is new content, overwriting old content.\n")
file.close()
print("\nFile overwritten successfully.")
file = open("example.txt", "a")
file.write("Appending this line to the file.\n")
file.close()
print("Content appended successfully.")
file = open("example.txt", "r")
content = file.read()
file.close()
print("\nUpdated Content of the file:")
print(content)
os.remove("example.txt")
print("File deleted successfully.")
```

Output:-

```
File created and written successfully.

Content of the file:
This is the first line.
This is the second line.

File overwritten successfully.
Content appended successfully.

Updated Content of the file:
This is new content, overwriting old content.
Appending this line to the file.

File deleted successfully.
```