Python For Data Science Day 1

Here are the key topics covered today:-

1. **Variable Reassignment**
   How to reassign values to variables.
2. **Declaring Multiple Variables**
   Assigning different data types to variables.
3. **Taking User Input and String Concatenation**
   Getting input from users and concatenating strings.
4. **Calculating Age from Birth Year**
   Working with input, type conversion, and basic arithmetic.
5. **Simple If-Else Condition**
   Using conditional statements to check if a number is even or odd.
6. **Basic Arithmetic Operations**
   Performing addition, subtraction, multiplication, division, floor division, and modulus operations.
7. **Looping Through a List**
   Using a for loop to iterate through a list of items.
8. **Using a While Loop**
   Implementing a while loop with a counting mechanism.
9. **Defining and Using Functions**
   Creating and calling functions with parameters.
10. **Creating and Accessing a Dictionary**
    Working with dictionaries, including adding and accessing key-value pairs.

11.List Comprehension

Creating lists using comprehension for concise code.

```
# code1: Variable Reassignment

price = 10  # Initially assigning 10 to the variable 'price'

price = 20  # Reassigning 20 to the variable 'price'

print(price)  # Output: 20, as the variable 'price' now holds the value 20
```

```
20

=== Code Execution Successful ===
```

```
# code2: Declaring Multiple Variables

full_name = 'Data Science Queen'  # String variable representing a full name

age = 21  # Integer variable representing age

is_new = True  # Boolean variable indicating if the person is new (True)

print(full_name)

print(age)
```

```
Data Science Queen
21

=== Code Execution Successful ===
```

```
# code3: Taking User Input and String Concatenation

name = input('What is your name?')  # Takes input from the user and stores it in the 'name' variable

dream = input('What is your dream company?')

print('Hey..i am',  name, 'My dream company is ', dream)  # Concatenates 'Hey..'
```

with the user's input and prints it

```
What is your name?Mauli
What is your dream company?Apple
Hey..i am Mauli My dream company is  Apple

=== Code Execution Successful ===
```

code4: Calculating Age from Birth Year

birth_year = input('Birth Year:') # Takes user's birth year as input (stored as a string)

print(type(birth_year)) # Prints the data type of 'birth_year', which will be <class 'str'>

age = 2024 - int(birth_year) # Converts 'birth_year' to an integer and calculates the age

print(age) # Prints the calculated age

```
Birth Year:2003
<class 'str'>
21

=== Code Execution Successful ===
```

code5: Simple If-Else Condition

number = int(input("Enter a number: ")) # Takes input from the user and converts it to an integer

if number % 2 == 0: # Checks if the number is divisible by 2 (even)

    print("Number is even",number) # Prints if the number is even

else:

    print("Number is odd",number) # Prints if the number is odd

```
Enter a number: 22
Number is even 22

=== Code Execution Successful ===
```

code6: Basic Arithmetic Operations

```
a = 15

b = 4

sum_result = a + b  # Adds a and b

diff_result = a - b  # Subtracts b from a

prod_result = a * b  # Multiplies a and b

div_result = a / b  # Divides a by b (floating-point division)

floor_div_result = a // b  # Divides a by b (integer division)

mod_result = a % b  # Finds the remainder of the division of a by b

print("Sum:", sum_result)

print("Difference:", diff_result)

print("Product:", prod_result)

print("Division:", div_result)

print("Floor Division:", floor_div_result)

print("Modulus:", mod_result)
```

```
Sum: 19
Difference: 11
Product: 60
Division: 3.75
Floor Division: 3
Modulus: 3

=== Code Execution Successful ===
```

code7: Looping Through a List

```
fruits = ['apple', 'banana', 'cherry']

for fruit in fruits:  # Loops through each element in the 'fruits' list
    print(fruit)  # Prints each fruit in the list
```

```
apple
banana
cherry

=== Code Execution Successful ===
```

code8: Using a While Loop

```
count = 0

while count < 5:  # Loops while 'count' is less than 5
    print("Count is:", count)  # Prints the current value of 'count'
    count += 1  # Increments 'count' by 1
```

```
Count is: 0
Count is: 1
Count is: 2
Count is: 3
Count is: 4

=== Code Execution Successful ===
```

code9: Defining and Using Functions

```
def greet_user(name):  # Defines a function that takes 'name' as a parameter
    print("Hello, " + name + "!")  # Prints a greeting message with the user's name

greet_user("Mauli")  # Calls the function with "Mauli" as the argument

greet_user("Data")  # Calls the function with "Data" as the argument
```

```
Hello, Mauli!
Hello, Data!

=== Code Execution Successful ===
```

code10: Creating and Accessing a Dictionary

```
person = {
    'name': 'Mauli',
    'age': 21,
    'city': 'New York'
}

print(person['name'])  # Accesses and prints the value associated with the key 'name'

print(person.get('age'))  # Uses the get() method to access the value associated with 'age'

person['email'] = 'mauli@example.com'  # Adds a new key-value pair to the dictionary

print(person)  # Prints the updated dictionary
```

```
Mauli
21
{'name': 'Mauli', 'age': 21, 'city': 'New York', 'email': 'mauli@example.com'}

=== Code Execution Successful ===
```

code11: List Comprehension

```
numbers = [1, 2, 3, 4, 5]

squared_numbers = [num ** 2 for num in numbers]  # Creates a new list with the squares of the numbers

print(squared_numbers)  # Prints the list of squared numbers
```

```
[1, 4, 9, 16, 25]

=== Code Execution Successful ===
```

Keep practicing and exploring—every line of code brings you closer to mastering data science. Stay curious, and keep learning!

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