Python Assignment Number o2

Submitted to: Atomcamp

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Task 1: Dictionary Operations

- Create a dictionary named 'capitals' with key-value pairs for countries and their capitals.
- Print the dictionary.
- Add a new country and its capital to the 'capitals' dictionary. Print the updated dictionary.
- Check if 'France' exists in the 'capitals' dictionary and print an appropriate message.

Task 1: Dictionary Operations

Added the dictionay which has Countries name with their capitals.

```
In [2]: capitals = {'Pakistan':'Islamabad','India': 'Dehli','Bangadesh':'Dhaka','Afghanistan': 'Kabul', 'Australia': 'Canberra','Azer
```

```
In [62]: capitals
```

```
Out[62]: {'Pakistan': 'Islamabad',
          'India': 'Dehli',
          'Bangadesh': 'Dhaka',
          'Afghanistan': 'Kabul',
          'Australia': 'Canberra',
          'Azerbaijan': 'Baku',
          'Brazil': 'Brasilia',
          'Germany': 'Berlin City',
          'France': 'Paris'}
```

Added new countries and their capitals in the existing list

```
In [8]: capitals['Germany']='Berlin City'
```

```
In [9]: capitals
```

```
Out[9]: {'Pakistan': 'Islamabad',
         'India': 'Dehli',
         'Bangadesh': 'Dhaka',
         'Afghanistan': 'Kabul',
         'Australia': 'Canberra',
         'Azerbaijan': 'Baku',
         'Brazil': 'Brasilia',
         'Germany': 'Berlin City'}
```

Dictonary reassignment while entering new key and its value

```
In [10]: capitals['France'] = 'Paris'

In [11]: capitals

Out[11]: {'Pakistan': 'Islamabad',
          'India': 'Dehli',
          'Bangadesh': 'Dhaka',
          'Afghanistan': 'Kabul',
          'Australia': 'Canberra',
          'Azerbaijan': 'Baku',
          'Brazil': 'Brasilia',
          'Germany': 'Berlin City',
          'France': 'Paris'}
```

Applied the IF Condition to check if the desired country exist is the dictionay and print appropriate messege fot it.

```
In [13]: if 'France' in capitals:
             print('Yes France is in the dictionay and its capital is Paris')
         else:
             print('Sorry I could not find it')

         Yes France is in the dictionay and its capital is Paris
```

Task 2: Comparison Operators, Logical Operators, and If/Else

- Create a variable for user input and write code to check if the number is even or odd.
- Print the result.
- Create variables for age and GPA. Write code to check eligibility for admission based on certain conditions. Print the result.

Task 2: Comparison Operators, Logical Operators, and If/Else

Applied the conditional formating to check the even and odd number and print messges based on their nature

```
In [3]: user_input = input("Enter a number: ")

        number = int(user_input)

        if number % 2 == 0:
            print(f"The number {number} is even.")
        else:
            print(f"The number {number} is odd.")

        Enter a number: 6
        The number 6 is even.
```

Applied the If condition to check the admission eligibilty based on two factors AGE and GPA

```
In [32]: Age_input = input("Your age at the time of application: ")
         age = int(Age_input)

         GPA_input = input("Your GPA in latest Degree: ")
         gpa = float(GPA_input.strip(']'))


         if 18 <= age <= 35 and gpa >= 2.5:
             print(" Your are wellcome ): You are eligible for admission")
         else:
             print("Soryy! You are not eligible for admission, try next time")

         Your age at the time of application: 19
         Your GPA in latest Degree: 2.3
         Soryy! You are not eligible for admission, try next time
```

Task 3: Advanced Data Types

- Create a set named 'fruits_set' with certain fruits. Print the set.
- Given two sets, perform various operations like union, intersection, difference, and subset check. Print the results.

Task 3: Advanced Data Types

Fruit Basket

In [33]:
```
fruits_set = {
    'apple', 'banana', 'cherry', 'date', 'elderberry', 'fig',
    'grape', 'honeydew', 'kiwi', 'lemon', 'mango', 'nectarine',
    'orange', 'papaya', 'quince'
}

print(fruits_set)
```

```
{'date', 'nectarine', 'grape', 'orange', 'apple', 'mango', 'lemon', 'papaya', 'honeydew', 'quince', 'kiwi', 'elderberry', 'f
ig', 'banana', 'cherry'}
```

Sets and application of various operation on them

In [34]:
```
Set1 = {1,2,3,4,5,6,7,8,9,10,11,12,2,3,1,3,4,2,4,2,22,33,22,12,11,14,13,13,}
```

In [36]:
```
Set2 = { 32,22,21,1,2,3,4,5,7,9,2,4,1,2,1,3,1,4,1,12,14,14,12,14,14,14,12,14}
```

In [39]:
```
union_result = Set1.union(Set2)
```

In [45]:
```
intersection_result = Set1.intersection(Set2)
```

In [40]:
```
difference_result_1 = Set1.difference(Set2)
```

In [41]:
```
difference_result_2 = Set2.difference(Set1)
```

In [42]:
```
is_subset_result_1 = Set1.issubset(Set2)
```

In [43]:
```
is_subset_result_2 = Set2.issubset(Set1)
```

In [46]:
```
union_result, intersection_result, difference_result_1, difference_result_2, is_subset_result_1, is_subset_result_2
```

Out[46]:
```
({1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 21, 22, 32, 33},
 {1, 2, 3, 4, 5, 7, 9, 12, 14, 22},
 {6, 8, 10, 11, 13, 33},
 {21, 32},
 False,
 False)
```

Task 4: Strings Manipulation

- Create a string variable with a given sentence. Perform various operations like finding. length, converting to uppercase, replacing words, checking for substrings, and splitting into words. Print the results.

Task 4: Strings Manipulation

```
In [15]: my_self = "My name is  M.Hamid Khan, I am the good student of Data Science at Atomcamp"

In [16]: length = len(my_self)

In [17]: uppercase_sentence = my_self.upper()

In [18]: replaced_sentence = my_self.replace("good", "excellent")

 In [9]: check_substring = "Data Science" in my_self

In [10]: split_sentence = my_self.split()

In [11]: length
Out[11]: 75
```

```
In [12]: uppercase_sentence
Out[12]: 'MY NAME IS  M.HAMID KHAN, I AM THE GOOD STUDENT OF DATA SCIENCE AT ATOMCAMP'

In [13]: replaced_sentence
Out[13]: 'My name is  M.Hamid Khan, I am the excellent student of Data Science at Atomcamp'

In [14]: check_substring
Out[14]: True
```

```
In [60]: split_sentence
Out[60]: ['My',
          'name',
          'is',
          'good',
          'M.Hamid',
          'Khan,',
          'I',
          'am',
          'the',
          'student',
          'of',
          'Data',
          'Science',
          'at',
          'Atomcamp']
```