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ICP1

5. In your colab file, write a python program for the following:

a. Input the string "Python" as a list of characters from console, delete at least 2 characters, reversetheresultant string, and print it.

```
[ ]  input_str = list(input("Enter the string (e.g., python): "))
     del input_str[1]
     del input_str[3]
     input_str.reverse()
     print("5a Output:", ''.join(input_str))
```

```
Enter the string (e.g., python): python
5a Output: nhtp
```

b. Take two numbers from user and perform at least 4 arithmetic operations on them.

```
[ ]  num1 = float(input("Enter first number: "))
     num2 = float(input("Enter second number: "))
     print("5b Output:")
     print("Addition:", num1 + num2)
     print("Subtraction:", num1 - num2)
     print("Multiplication:", num1 * num2)
     print("Division:", num1 / num2 if num2 != 0 else "Undefined (division by zero)")
```

```
Enter first number: 5.0
Enter second number: 3.0
5b Output:
Addition: 8.0
Subtraction: 2.0
Multiplication: 15.0
Division: 1.6666666666666667
```

6. Write a program that accepts a sentence and replace each occurrence of 'python' with 'pythons'.

```
[ ]  sentence = input("Enter a sentence: ")
     replaced_sentence = sentence.replace("python", "pythons")
     print("6 Output:", replaced_sentence)
```

```
Enter a sentence: I love playing with python
6 Output: I love playing with pythons
```

7. Use the if statement conditions to write a program to print the letter grade based on an input class score. Use the grading scheme we are using in this class.

```
score = float(input("Enter your class score (0-100): "))

if score >= 90:
    grade = 'A'
elif score >= 80:
    grade = 'B'
elif score >= 70:
    grade = 'C'
elif score >= 60:
    grade = 'D'
else:
    grade = 'F'

print("Your grade is:", grade)
```

```
Enter your class score (0-100): 93
Your grade is: A
```

8. Write a code that appends the type of elements from a given list.

Input x = [23, ‘Python’, 23.98]

```
[ ]  x = [23, 'Python', 23.98]
     types = [type(i) for i in x]

     print(x)
     print(types)
```

```
[23, 'Python', 23.98]
[<class 'int'>, <class 'str'>, <class 'float'>]
```

9. IT_companies = {'Facebook', 'Google', 'Microsoft', 'Apple', 'IBM', 'Oracle', 'Amazon'}

A = {19, 22, 24, 20, 25, 26}

B = {19, 22, 20, 25, 26, 24, 28, 27}

age = [22, 19, 24, 25, 26, 24, 25, 24]

```
IT_companies = {'Facebook', 'Google', 'Microsoft', 'Apple', 'IBM', 'Oracle', 'Amazon'}
A = {19, 22, 24, 20, 25, 26}
B = {19, 22, 20, 25, 26, 24, 28, 27}
age = [22, 19, 24, 25, 26, 24, 25, 24]
print("Length of IT_companies:", len(IT_companies))
IT_companies.add('Twitter')
print("After adding Twitter:", IT_companies)
IT_companies.update(['TCS', 'Infosys', 'Wipro'])
print("After adding multiple companies:", IT_companies)
IT_companies.remove('IBM')
print("After removing IBM:", IT_companies)
print("\nRemove vs Discard:")
temp_set = {'A', 'B'}
temp_set.discard('C')
print("Discard done without error.")
print("A union B:", A.union(B))
print("A intersection B:", A.intersection(B))
print("Is A subset of B?", A.issubset(B))
print("Are A and B disjoint?", A.isdisjoint(B))
print("A | B:", A | B)
print("B | A:", B | A)
print("Symmetric difference between A and B:", A.symmetric_difference(B))
```

```
print("Symmetric difference between A and B:", A.symmetric_difference(B))
del A, B
print("Sets A and B deleted.")
age_set = set(age)
print("Original list length:", len(age))
print("Set length (unique ages):", len(age_set))
```

```
Length of IT_companies: 7
After adding Twitter: {'Google', 'Oracle', 'Microsoft', 'Apple', 'Facebook', 'Amazon', 'Twitter', 'IBM'}
After adding multiple companies: {'Infosys', 'Twitter', 'Wipro', 'TCS', 'Google', 'Oracle', 'Microsoft', 'Facebook', 'Apple', 'Amazon', 'IBM'}
After removing IBM: {'Infosys', 'Twitter', 'Wipro', 'TCS', 'Google', 'Oracle', 'Microsoft', 'Facebook', 'Apple', 'Amazon'}

Remove vs Discard:
Discard done without error.
A union B: {19, 20, 22, 24, 25, 26, 27, 28}
A intersection B: {19, 20, 22, 24, 25, 26}
Is A subset of B? True
Are A and B disjoint? False
A | B: {19, 20, 22, 24, 25, 26, 27, 28}
B | A: {19, 20, 22, 24, 25, 26, 27, 28}
Symmetric difference between A and B: {27, 28}
Sets A and B deleted.
Original list length: 8
Set length (unique ages): 5
```

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Video presentation: https://youtu.be/8lj23iQap_c