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**SEMESTER: IV**

**CLASS: SE COMPS B**

**BATCH: B**

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**TOPIC: PYTHON EXPERIMENT 1**

**Numbers: a.]To compute prime factors of an integer**

```
#Taking input from the user
n=int(input("Enter an integer:"))
print("Factors are:")
#Initializing i to 1
i=1
while(i <= n):
    k=0
    if(n%i == 0):
        j=1
        while(j <= i):
            if(i%j == 0):
                k = k + 1
                j = j + 1
            if(k == 2):
                print(i)
        i = i+1
```

```
Enter an integer:6
Factors are:
2
3
```

**Strings: b.]To find duplicate characters in a given string**

```
#initializing string
string = "college"
#initializing a dictionary
duplicates = {}
for char in string:
```

```
#checking whether the char is already present in dictionary or not
if char in duplicates:
    #increasing count if present
    duplicates[char] += 1
else:
    #initializing count to 1 if not present
    duplicates[char] = 1
for key, value in duplicates.items():
    if value > 1:
        print(key, end = " ")
print()
```

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**List:** a.]To Remove the Duplicates from a List.

```
def Remove(duplicate):
    final_list = []
    for num in duplicate:
        if num not in final_list:
            final_list.append(num)
    return final_list

# Driver Code
duplicate = [2, 4, 10, 20, 5, 2, 20, 4]
print(Remove(duplicate))
```

[2, 4, 10, 20, 5]

**Arrays:** a.]Write a Python program to find a pair with highest product from a given array of integers.

```
def maxProduct(arr, n):

    if (n < 2):
        print("No pairs exists")
        return

    # Initialize max product pair
    a = arr[0]; b = arr[1]

    # Traverse through every possible pair and keeping track of max product
    for i in range(0, n):

        for j in range(i + 1, n):
            if (arr[i] * arr[j] > a * b):
                a = arr[i]; b = arr[j]

    print("The pair with highest product from a given array of integers {" , a , "," , b , "}")
```

```
arr = [1, 4, 3, 6, 7, 0]
n = len(arr)
maxProduct(arr, n)
```

The pair with highest product from a given array of integers {6,7}

**Functions: d.]** To print all unique values in a dictionary.

```
# Initialize list
test_list = [{'Sam' : 'python', 'Rick' : 'C++'}, {'John' : 'python', 'Tresa' : 'Java'}, {'I'}

# printing original list
print("The original list : " + str(test_list))

# Get Unique values from list of dictionary
res = list(set(val for dic in test_list for val in dic.values()))

# printing result
print("The unique values in list are : " + str(res))
```

The original list : [{'Sam': 'python', 'Rick': 'C++'}, {'John': 'python', 'Tresa': 'Java'}, {'I'}]  
 The unique values in list are : ['C++', 'Java', 'python']

**Functions: d.]** To merge two dictionaries.

```
def Merge_Dictionaries(first, second):
    #using the unpacking operator
    result = {**first_Dict, **second_Dict}
    return result

first_Dict = {'a': 'Carrot', 'b': 'Tomato' , 'o': 'Brinjal'}
second_Dict = { 'k': 'Onion', 'm': 'Garlic'}
print("First Dictionary: ", first_Dict)
print("Second Dictionary: ", second_Dict)

# Merging Two Dictionaries in Python
third_Dict = Merge_Dictionaries(first_Dict, second_Dict)

print("\nAfter Merging the two Dictionaries : ")
print(third_Dict)
```

First Dictionary: {'a': 'Carrot', 'b': 'Tomato', 'o': 'Brinjal'}  
 Second Dictionary: {'k': 'Onion', 'm': 'Garlic'}

After Merging the two Dictionaries :  
 {'a': 'Carrot', 'b': 'Tomato', 'o': 'Brinjal', 'k': 'Onion', 'm': 'Garlic'}

