

**Assignment -2**  
Python Programming

Assignment Date	29 September 2022
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Maximum Marks	2 Marks

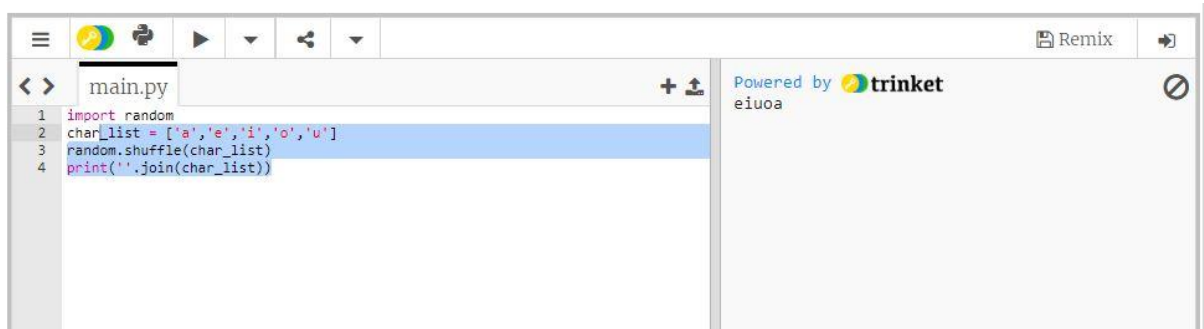
**Question-1:**

Write a Python program to create all possible strings by using 'a', 'e', 'i', 'o', 'u'. Use the characters exactly once.

**Solution:**

```
import random
char_list = ['a','e','i','o','u']
random.shuffle(char_list)
print(''.join(char_list))
```

**Output:**



```
main.py
1 import random
2 char_list = ['a','e','i','o','u']
3 random.shuffle(char_list)
4 print(''.join(char_list))
```

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**Question-2:**

Write a Python program to create a histogram from a given list of integers.

**Solution:**

```
x = input("Input the first number")
y = input("Input the second number")
z = input("Input the third number")
print("Median of the above three numbers -")

if y < x and x < z:
    print(x)
```

```

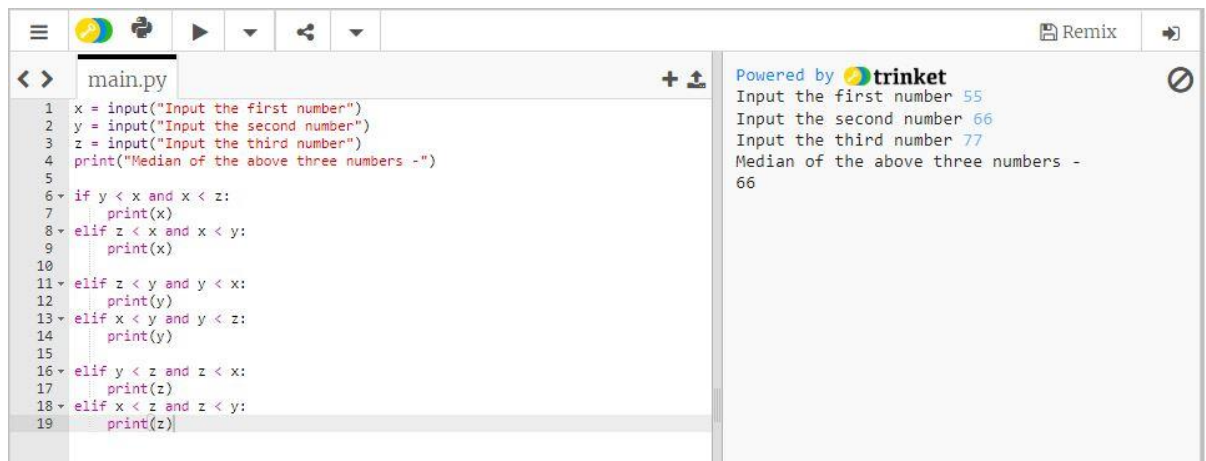
elif z < x and x < y:
    print(x)

elif z < y and y < x:
    print(y)
elif x < y and y < z:
    print(y)

elif y < z and z < x:
    print(z)
elif x < z and z < y:
    print(z)

```

### Output:




The screenshot shows a Trinket Python IDE interface. On the left, a code editor displays a Python script named 'main.py' that calculates the median of three numbers. The script prompts the user for three numbers and prints the median. On the right, the output console shows the results of running the program with inputs 55, 66, and 77, resulting in a median of 66.

```

main.py
1 x = input("Input the first number")
2 y = input("Input the second number")
3 z = input("Input the third number")
4 print("Median of the above three numbers -")
5
6 if y < x and x < z:
7     print(x)
8 elif z < x and x < y:
9     print(x)
10
11 elif z < y and y < x:
12     print(y)
13 elif x < y and y < z:
14     print(y)
15
16 elif y < z and z < x:
17     print(z)
18 elif x < z and z < y:
19     print(z)

```

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Input the first number 55  
Input the second number 66  
Input the third number 77  
Median of the above three numbers -  
66

### Question-3:

Write a Python program to replace a string "Python" with "Java" and "Java" with "Python" in a given string.

### Solution:

```
print("Input a text with two words 'Python' and 'Java'")
```

```

text = input().split()
for i in range(len(text)):
    if "Python" in text[i]:n = text[i].index("Python");text[i] =
text[i][:n] + "Java" + text[i][n + 6:]
    elif "Java" in text[i]:n = text[i].index("Java");text[i] =
text[i][:n] + "Python" + text[i][n + 4:]
print(*text)

```

#### Output:



The screenshot shows a Trinket.io code editor with a file named 'main.py'. The code in the editor is as follows:

```

1 print("Input a text with two words 'Python' and 'Java'")
2 text = input().split()
3 for i in range(len(text)):
4     if "Python" in text[i]:n = text[i].index("Python");text[i] = text[i][:n] +
5     elif "Java" in text[i]:n = text[i].index("Java");text[i] = text[i][:n] + "P
6 print(*text)

```

The output on the right shows the program's execution:

```

Input a text with two words 'Python' and 'Java'
Python is popular than Java
Java is popular than Python

```

#### Question-4:

Write a Python program to display the first and last colors from the following list.

Write a Python program that reads n digits (given) chosen from 0 to 9 and prints the number of combinations where the sum of the digits equals to another given number (s). Do not use the same digits in a combination.

#### Solution:

```

import itertools
print("Input number of combinations and sum, input 0 0 to exit:")
while True:
    x, y = map(int, input().split())
    if x == 0 and y == 0:
        break
    s = list(itertools.combinations(range(10), x))
    ctr = 0
    for i in s:
        if sum(i) == y:
            ctr += 1

```

```
print(ctr)
```

### Output:



The screenshot shows a Trinket.io code editor with a Python script in a file named `main.py`. The script is a loop that takes two inputs, `x` and `y`, and generates combinations of numbers from 0 to `x-1` that sum to `y`. The output on the right shows the results for `x=5` and `y=6`, which are the combinations `[2, 4]` and `[0, 0]`, with a counter `ctr` of 2.

```
1 import itertools
2 print("Input number of combinations and sum, input 0 0 to exit:")
3 while True:
4     x, y = map(int, input().split())
5     if x == 0 and y == 0:
6         break
7     s = list(itertools.combinations(range(10), x))
8     ctr = 0
9     for i in s:
10        if sum(i) == y:
11            ctr += 1
12
13 print(ctr)
```

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Input number of combinations and sum, input 0 0 to exit:  
5 6  
2 4  
0 0  
2

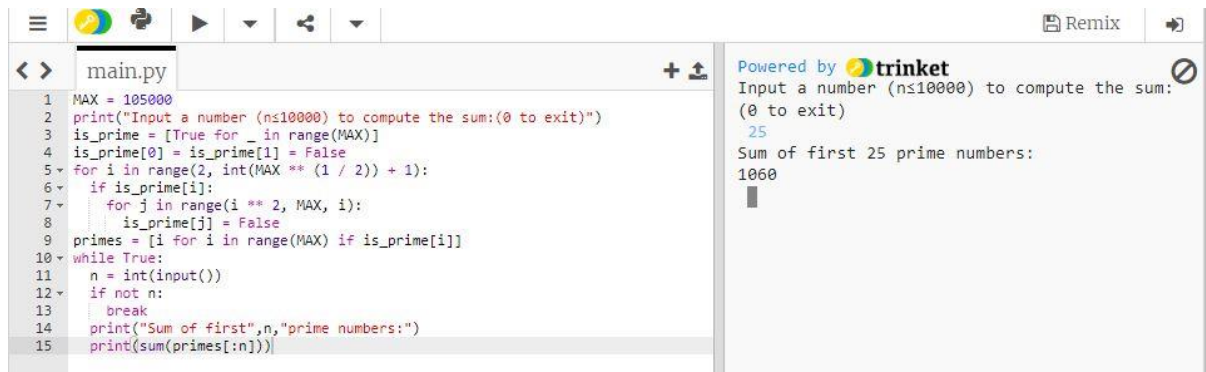
### Question-5:

Write a Python program to compute the sum of first n given prime numbers.

### Solution:


```
MAX = 105000
print("Input a number (n≤10000) to compute the sum:(0 to exit)")
is_prime = [True for _ in range(MAX)]
is_prime[0] = is_prime[1] = False
for i in range(2, int(MAX ** (1 / 2)) + 1):
    if is_prime[i]:
        for j in range(i ** 2, MAX, i):
            is_prime[j] = False
primes = [i for i in range(MAX) if is_prime[i]]
while True:
    n = int(input())
    if not n:
        break
    print("Sum of first",n,"prime numbers:")
    print(sum(primes[:n]))
```

## Output:



The image shows a Trinket.io code editor interface. On the left, a file named 'main.py' is open, displaying a Python script. The script defines a constant MAX = 105000, initializes an is\_prime list, and uses a sieve of Eratosthenes to find prime numbers. It then prompts the user for a number to compute the sum of primes up to that number. The right panel shows the output of the program, which includes the prompt, the user input '25', and the resulting sum of the first 25 prime numbers, 1060.

```
1 MAX = 105000
2 print("Input a number (n≤10000) to compute the sum:(0 to exit)")
3 is_prime = [True for _ in range(MAX)]
4 is_prime[0] = is_prime[1] = False
5 for i in range(2, int(MAX ** (1 / 2)) + 1):
6     if is_prime[i]:
7         for j in range(i ** 2, MAX, i):
8             is_prime[j] = False
9 primes = [i for i in range(MAX) if is_prime[i]]
10 while True:
11     n = int(input())
12     if not n:
13         break
14     print("Sum of first",n,"prime numbers:")
15     print(sum(primes[:n]))
```

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Input a number (n≤10000) to compute the sum:  
(0 to exit)  
25  
Sum of first 25 prime numbers:  
1060