

Question-1:

Write a program that will print the sum of diagonal elements of a 10X10 matrix. The program will take a total of 100 numbers as input (10 numbers will be input per line and each number will be separated by a space).

Example 1

- Input: 1 2 3 4 5 6 7 8 9 0

0 1 2 3 4 5 6 7 8 0

3 4 5 6 7 8 9 6 4 0

2 3 4 5 6 7 8 9 3 2

3 4 5 6 7 4 3 2 1 3

3 4 5 6 2 4 4 2 4 6

2 3 4 6 2 4 6 2 3 5

2 3 5 6 2 4 6 2 3 5

2 4 6 2 1 4 3 3 5 2

3 3 5 2 4 6 2 1 4 6

- Output: 42

Example 2

- Input: 1 22 33 44 55 66 77 88 99 100

100 1 88 77 66 55 44 33 22 11

88 88 1 66 55 44 33 22 11 100

88 77 66 1 44 33 22 11 100 99

77 66 55 44 1 22 11 88 99 100

66 55 44 33 22 1 77 88 99 100

44 33 22 11 100 99 1 77 66 55

33 22 11 100 99 88 77 1 55 44

22 11 100 99 88 77 66 55 1 33

100 11 22 33 44 55 99 88 77 1

- Output: 10

Code:

```
L=[]
sum=0
for i in range(10):
    l=list(map(int,input().split()))
    L.append(l)
    sum+=L[i][i]
print(sum)
```

Question-2:

Write a code to remove vowels in a string.

Code:

```
def is_vowel(c):
    lowercase = c.lower()
    return lowercase == 'a' or lowercase == 'e' or lowercase == 'i' or lowercase == 'o' or lowercase == 'u'

def remove_vowels(input_str):
    result = ""

    for c in input_str:
        if not is_vowel(c):
            result += c

    return result

if __name__ == "__main__":
    input_str = input()
    result = remove_vowels(input_str)
    print(result)
```

Question-3:

Write a program to find out and display prime numbers from the given list of integers. The program will accept input in two lines. First-line contains a number indicating the total number of integers in the list and the second line contains integers separated by spaces.

Example 1

- Input: 5

4 6 9 3 7

- Output: 3 7

Example 2

- Input: 10

8 10 3 12 7 15 11 2 17 26

- Output: 3 7 11 2 17

Code:

```
numbers = [10, 3, 5, 7, 4, 8, 11, 13, 16]
```

```
for num in numbers:
```

```
    if num > 1:
```

```
        is_prime = True
```

```
        for i in range(2, num):
```

```
            if num % i == 0:
```

```
                is_prime = False
```

```
            break
```

```
        if is_prime:
```

```
            print(num)
```

Question-4:

Given a sentence with numbers representing a word's location in the sentence, embedded within each word, and return the sorted sentence.

Note: We are using a maximum of 0-9 numbers only for 1 sentence

Example 1

- Input: is1 Thi0s T3est 2a
- Output: This is a Test

Example 2

- Input: t2o j3oin 4WonderBiz l0 Technolog5ies wan1t
- Output: I want to join WonderBiz Technologies

Code:

```
from collections import defaultdict
m=defaultdict(str)
s=list(map(str,input().split(" ")))
for i in s:
    s1=""
    s2=""
    for j in i:
        if j<='9' and j>='0':
            s1+=j
        else:
            s2+=j
    m[int(s1)]=s2
for i in range(len(s)):
    print(m[i],end=" ")
```

Question-5:

Convert a decimal number to binary number

Code Using Built-in Method:

```
num = int(input("Enter a decimal number: "))
```

```
binary_representation = bin(num)[2:]
```

```
print(binary_representation)
```

Code Without Using Built-in Method:

```
num = int(input("Enter a decimal number: "))
```

```
binary_representation = ""
```

```
if num == 0:
```

```
    binary_representation = "0"
```

```
while num > 0:
```

```
    remainder = num % 2
```

```
    binary_representation = str(remainder) + binary_representation
```

```
num = num // 2
```

```
print(binary_representation)
```