SR UNIVERSITY

SchoolofComputerScienceandArtificialIntelligence

LabAssignment#4

Name of Student :Yuvaraj B
Enrollment No. : 2303A51440
BatchNo. 21

TaskDescription-1
• Zero-shot:PromptAIwithonlytheinstruction.WriteaPythonfunctiontodetermine whether a given number is prime
ExpectedOutput-1
• AbasicPythonfunctiontocheckifanumberisprime,demonstratingcorrectlogical conditions without relying on examples or additional context

Prompt:-
writeafunctiontocheckifanumberisprimedemonstratingcorrectlogicalconditions without relying on examples or additional context in user-defined range.

Code:-

Assignments Codes > Assignment4.py > ...

```
# Task1
# write a function to check if a number is prime demonstrating cor
def is_prime(n):
    if n <= 1:
        return False
    for i i(parameter) n: Any ) + 1):
        if n % i == 0:
            return False
    return True
# Example usage:
number = int(input("Enter a number to check if it's prime: "))
if is_prime(number):
    print(f"{number} is a prime number.")
else:
    print(f"{number} is not a prime number.")

```

Output:-

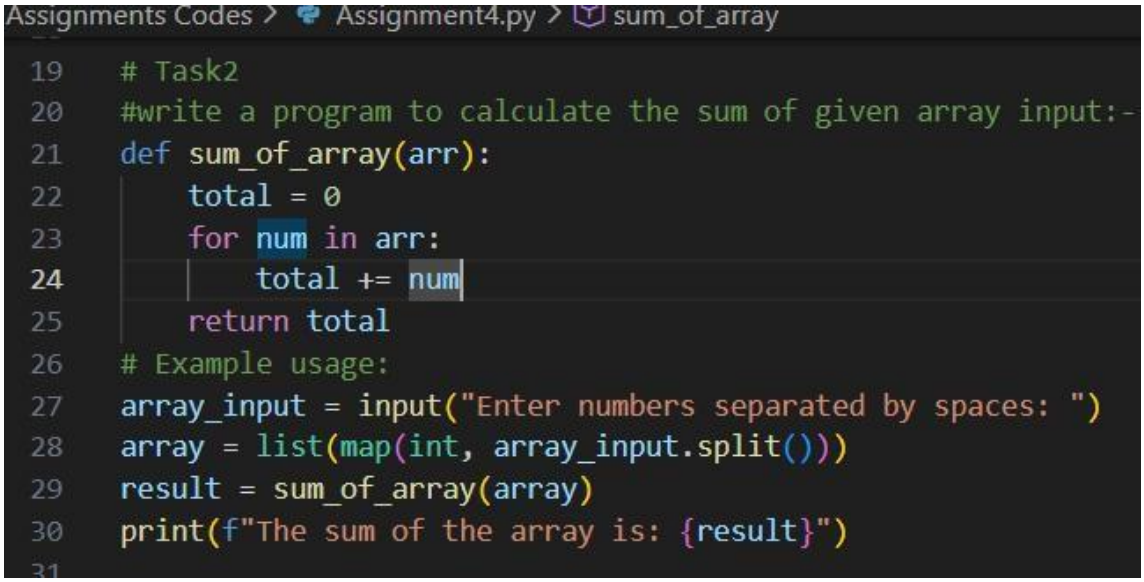
```
Enter a number to check if it's prime: 6
6 is not a prime number.
```

Justification:-
Thefunctionchecksforprimalitybytestingdivisibilityfrom2uptothesquarerootofthe number, which is an efficient and standard method for prime checking.

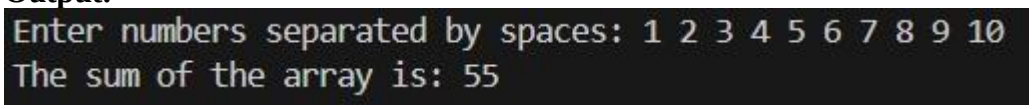
TaskDescription-2
• One-shot:Provideoneexample:Input:[1,2,3,4],Output:10tohelpAIgeneratea function that calculates the sum of elements in a list.
ExpectedOutput-2
• Acorrectconversionfunctionguidedbythesingle example.

Prompt:-
writeaprogramtocalculatethesumofgiven arrayinput:-[1,2,3,4]output:-10indynamic way.

Code:-



Output:-



Justification:-
Theprogramtakesdynamicinputfromtheuser,allowingforanyarrayofintegerstobe summed, rather than being limited to a predefined array.

TaskDescription-3
• Few-shot:Give2–3examplestocreateafunctionthatextractsdigitsfroman alphanumeric string.
ExpectedOutput-3
• Accuratefunctionthatreturnsonlythedigitsfromalphanumericstring.

Prompt:-
writeaprogramtoalphanumericstringandaccuratefunctiononlydigitsfromalphanumeric string.

Code:-

```
Assignments Codes > Assignment4.py > ...
33  # Task3
34  # write a program to alphanumeric string and accurate function only digits from alphanumeric string.
35  def extract_digits(alphanumeric_str):
36      digits = ''.join(filter(str.isdigit, alphanumeric_str))
37      return digits
38  # Example usage:
39  alphanumeric_input = input("Enter an alphanumeric string: ")
40  digits_only = extract_digits(alphanumeric_input)
41  print(f"The digits extracted from the string are: {digits_only}")
42
```

Output:-

```
Enter an alphanumeric string: phani1529
The digits extracted from the string are: 1529
```

Justification:-

Thefunctionusesthebuilt-infilterfunctionalongwithstr.isdigittoefficientlyextractonly the digit characters from the input string. This approach is concise and leverages Python's capabilities for string manipulation.

TaskDescription-4

• Comparezero-shotvsfew-shotpromptingforgeneratingafunctionthatcountsthe number of vowels in a string.

ExpectedOutput-4

• Outputcomparison+studentexplanationonhowexampleshelpedthe model.

Prompt:-

writea programtofunctionthatcountsthenumber ofvowelsina givenstring.

Code:-

```
Assignments Codes > Assignment4.py > ...
44  # Task4
45  # write a program to function that counts the number of vowels in a given string.
46  def count_vowels(input_str):
47      vowels = 'aeiouAEIOU'
48      count = sum(1 for char in input_str if char in vowels)
49      return count
50  # Example usage:
51  string_input = input("Enter a string: ")
52  vowel_count = count_vowels(string_input)
53  print(f"The number of vowels in the string is: {vowel_count}")
54
```

Output:-

```
Enter a string: thakur phani kumar singh
The number of vowels in the string is: 7
```

Justification:-

Thefunctioniteratesthrougheachcharacterintheinputstringandchecksifitisavowelby seeing if it exists in the predefined string of vowels. It uses a generator expression to count the occurrences efficiently.

TaskDescription-5
• Usefew-shotpromptingwith3sampleinputstogenerateafunctionthatdetermines the minimum of three numbers without using the built-in min() function.
ExpectedOutput-5
• Afunctionthathandlesallcaseswithcorrectlogicbasedonexample patterns.

Prompt:-
writeaprogramtogeneratefunctionthathandlestheminimumofthreenumberswithput using builtin min() function.

Code:-

Assignments Codes > Assignment4.py > ...

```
55
56  # Task5
57  # write a program to generate function that handles the minimum o
58  def minimum_of_three(a, b, c):
59      if a <= b and a <= c:
60          return a
61      elif b <= a and b <= c:
62          return b
63      else:
64          return c
65  # Example usage:
66  num1 = float(input("Enter first number: "))
67  num2 = float(input("Enter second number: "))
68  num3 = float(input("Enter third number: "))
69  min_number = minimum_of_three(num1, num2, num3)
70  print(f"The minimum of the three numbers is: {min_number}")
71
```

Output:-

```
Enter first number: 10
Enter second number: 50
Enter third number: 90
The minimum of the three numbers is: 10.0
```

Justification:-
The provided code snippets effectively address each of the specified tasks using clear and logicalimplementations.Eachfunctionisdesignedtoperformitsintendedoperationwithout relying on external libraries or built-in functions that would simplify the task, thus demonstrating a solid understanding of fundamental programming concepts.