Python for Computer Science and Data Science 1 (CSE 3651)

MINOR ASSIGNMENT-3: FUNCTIONS

1. Write a Python function to find the first, second and third greatest digit in a number.
   Sample Number: 6328
   Expected Output: 8, 6, 3

2. Find the numbers between 100 and 500, which are divisible by 3 and multiples of 5 using function in Python.

3. Write a Python function to add the squares of the even numbers between 1 and 50 (both included).

4. Write a function that takes a string as input and returns the reversed string.

5. Write a function that takes a positive integer and returns the number of digits.

6. Define a function to check if a given string is a palindrome. Example: madam ↻ madam, racecar ↻ racecar.

7. Write a Python function to check whether an alphabet is a vowel or consonant.

8. Write a Python program that takes the name of a month as input and returns the number of days in that month.
   Input: The name of the Month: February
   Output: No. of days: 28/29 days

9. Write two functions, one of which converts a binary number to decimal and the other one does the reverse.

10. Create a function that returns all the unique permutations of a given string.

11. Create a function that determines whether a string can be rearranged to form a palindrome.

12. Write a Python program using functions that prompt the user to enter today's date (in the format YYYY-MM-DD) and the current day of the week. Then, ask the user to input a number of days. The program should calculate and display the new date and the day of the week after the specified number of days have passed.
    Input:
    Today's date: 2024-08-27
    Today's day: Tuesday
    Number of days: 5
    Output:
    New date: 2024-09-01
    New day: Sunday

13. Write a program that converts a Roman numeral to its integer equivalent.

14. Write a function to determine if a given number is an Armstrong number. (An Armstrong number is a number that is equal to the sum of its digits, each raised to the power of the number of digits, e.g., $153 = 1^3 + 5^3 + 3^3$, $1634 = 1^4 + 6^4 + 3^4 + 4^4$).

15. Create a function that returns the n^{th} number in the Fibonacci sequence.

16. Write a function to implement a basic calculator that can add, subtract, multiply, and divide two numbers based on user input.
17. Create a function that takes a string and returns a new string where all the vowels are removed.
18. Write a function to check if a string is an Anagram of another string. (An anagram is a word or phrase formed by rearranging the letters of a different word or phrase, typically using all the original letters exactly once, e.g. tom marvolo riddle $\rightsquigarrow$ i am lord voldemort)
19. Create a function to find the greatest common divisor (GCD) of two numbers using a while loop.
20. Write a function to print all prime numbers between 1 and 100.
21. Write a function to calculate the factorial of a number using a loop.
22. Create a function that prints the first 10 terms of an arithmetic progression.
23. Write a function that returns the index of each vowel in a string using a for loop.
24. Write a function that removes all punctuation from a string.
25. Write a function to check if two numbers are coprime.
26. Write a function that replaces all vowels in a string with the character "*".
27. Write a function that takes a positive number as an input and converts the respective digits into corresponding text. Example: 85 $\mapsto$ eight five, 123 $\mapsto$ one two three.
28. Write a function that takes a string of lowercase alphabets as inputs and gives an output by shifting them by one letter ahead. Note that if the string has 'z', then it will be treated as 'a'. Example: python $\mapsto$ qzuipo, pythonzabc $\mapsto$ qzuipobbcd.
29. Write a function to check if a given number is a perfect number. (A number is called a perfect number if it is equal to the sum of its real divisors, e.g., 6=1+2+3, 28=1+2+4+7+14).
30. Write a function that inputs a number and returns the product of digits of that number.