Programming Fundamentals LAB – Fall 2022
(BS-IT-F22 Morning)
Lab - 08

Instructions:

- Attempt the following tasks exactly in the given order. For each task, you must create a
- separate project in Visual Studio.
- You must complete all tasks individually. Absolutely NO collaboration is allowed. Any traces of plagiarism/cheating would result in an "F" grade in this course.
- **Indent** your code properly.
- Use meaningful variable names. Use the **camelCase** notation to name variables.
- Use **meaningful prompt** lines/labels for all input/output that is performed by your programs.

Note:

- Implement all the task as **functions**
- You are not allowed to take input in the main function and not in the function which performs a specific task for input make a separate function like if you want to take height as an input write function which has a prototype like this **int getHeight();** Perform all the input validation in this function.

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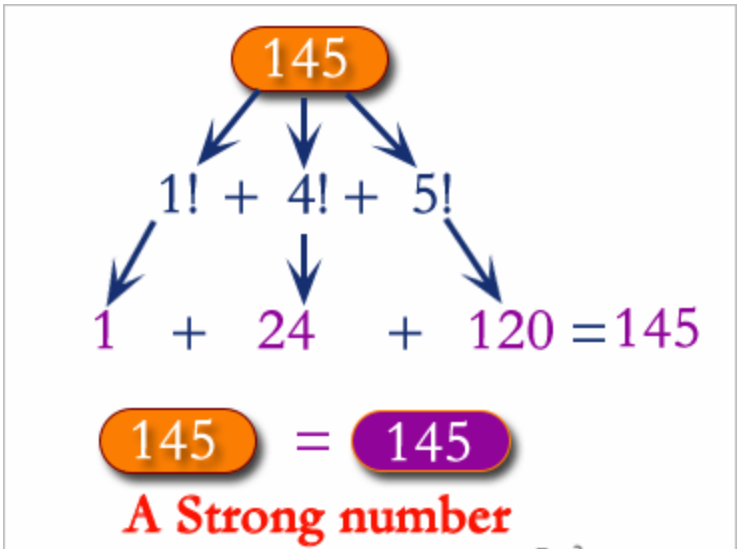
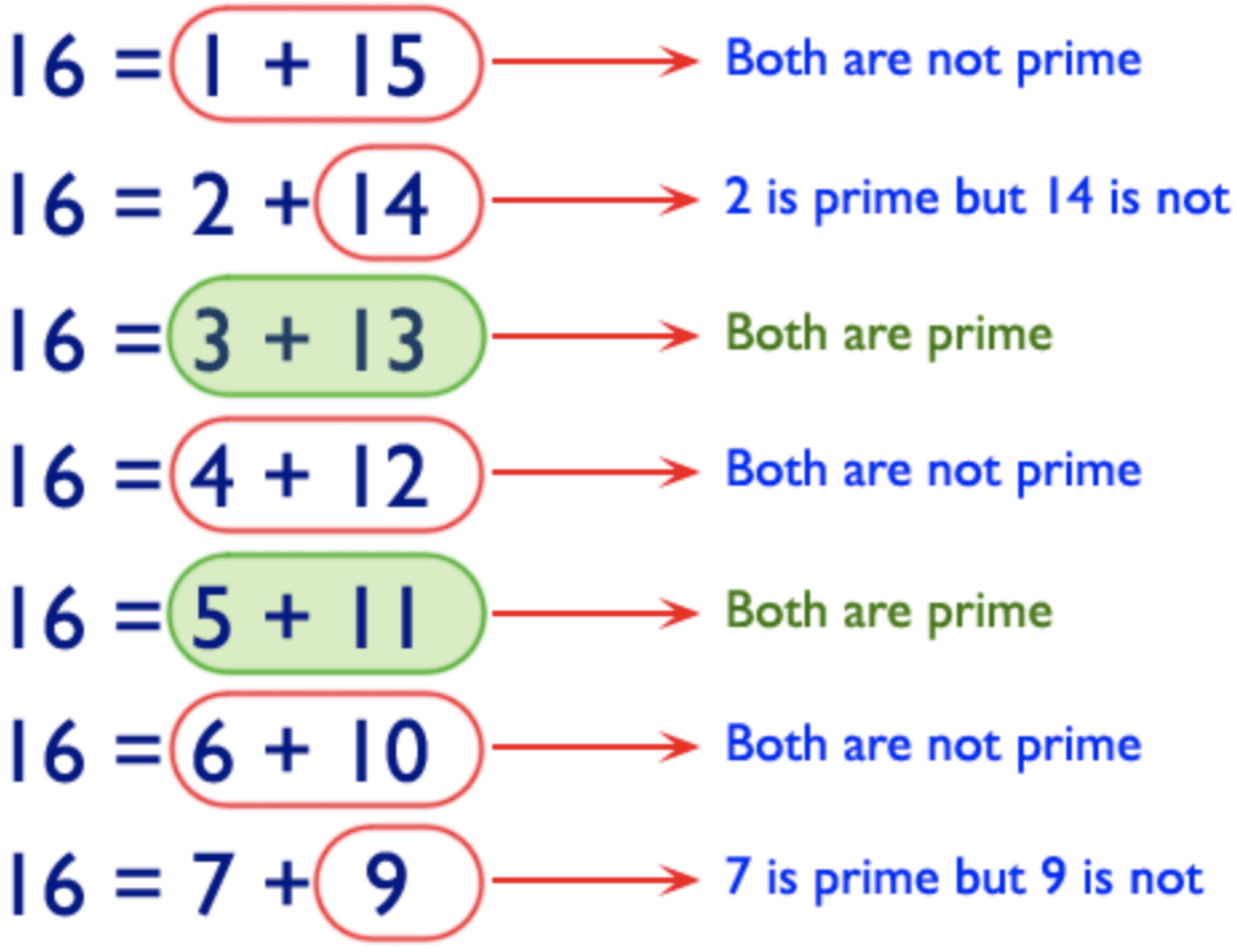
1. Write a C program to check whether a number is a Strong Number or not.



2. Write a program in C to check whether a number can be expressed as the sum of two prime numbers.



Note: If a number can be expressed as the sum of two prime numbers, return true from the function; otherwise, return false also print a pair of prime numbers in the function .

3. Write a C program to find the HCF (Highest Common Factor) of two numbers.

Sample Run:

```
  HCF of two numbers:
 ---------------------
Input 1st number for HCF: 10
Input 2nd number for HCF: 17

HCF of 10 and 17 is : 1


  HCF of two numbers:
 ---------------------
Input 1st number for HCF: 10
Input 2nd number for HCF: 48

HCF of 10 and 48 is : 2


  HCF of two numbers:
 ---------------------
Input 1st number for HCF: 9
Input 2nd number for HCF: 45

HCF of 9 and 45 is : 9
```

4. Write C program

a) which take two int from user start and end and print all the prime numbers between them (both start and end also inclusive)

Sample Run:

```
Enter the range:(start and end)
Enter starting value: 12
Enter ending value: 50
Prime numbers between 12 and 50 are:
13 17 19 23 29 31 37 41 43 47
Do you wanna continue if yes enter 1 otherwise 0:1
Enter the range:(start and end)
Enter starting value: 17
Enter ending value: 23
Prime numbers between 17 and 23 are:
17 19 23
Do you wanna continue if yes enter 1 otherwise 0:0
Bye Bye!!
```

b) Now write function which return the count of prime number between start and end

Sample Run:

```
Enter starting value:17
Enter ending value:27
Count of prime numbers between 17 and 27: 3
```

5. Write a program in C to display the multiplier table vertically from 1 to n.

Sample Output:

Input up to the table number starting from 1 : 5

Multiplication table from 1 to 5

1x1 = 1	**2x1 = 2**	**3x1 = 3**	**4x1 = 4**	**5x1 = 5**
1x2 = 2	**2x2 = 4**	**3x2 = 6**	**4x2 = 8**	**5x2 = 10**
1x3 = 3	**2x3 = 6**	**3x3 = 9**	**4x3 = 12**	**5x3 = 15**
1x4 = 4	**2x4 = 8**	**3x4 = 12**	**4x4 = 16**	**5x4 = 20**
1x5 = 5	**2x5 = 10**	**3x5 = 15**	**4x5 = 20**	**5x5 = 25**

(up to 10)

6. Write a C program to display the pyramid pattern using the alphabet

Sample Run:

```
Input the number of Letters (less than 26) in the Pyramid : 5
        A
      A B A
    A B C B A
  A B C D C B A
A B C D E D C B A
```

☺ GOOD LUCK! ☺

☺ Code your dreams into reality! ☺