Problems on loops-2

Assignment Questions

PW SKILLS

Q1 - Write a program to print Fibonacci series of n terms where n is input by user. (Easy)

Input1:
6

Output1:
1 1 2 3 5 8

Input2:
2

Output2:
1 1

Q2 - Write a program to enter the numbers till the user wants, the number can be positive, negative or zero. Calculate the sum of numbers until a negative number is encountered. If the input is a negative number, current sum is discarded and print -1. (Medium)

Input1:
2
48
0
6
-5
9
7

Output1:
-1

Input2:
0
2
6
1
4
0

Output2:
13

Q3 - Write a program to calculate the factorial of a number. (Easy)

Explanation:
Factorial of any number n is represented by n! and is equal to 1*2*3*....*(n-1)*n.
E.g.-
4! = 1*2*3*4 = 24
3! = 3*2*1 = 6
Also,
1! = 1
0! = 0

Input1:
5

Output1:
120

Input2:
1

Output2:
1

Q4- Write a program to print all Armstrong numbers between 1 to n. (Medium)

Explanation:
A three digit number is called the Armstrong number if the sum of the cube of its digit is equal to the number itself.
E.g.- 153 is an Armstrong number because (1^3)+(5^3)+(3^3) = 153.

Input1:
1000

Output1:
0
1
153
370
371
407

Input2:
500

Output2:
0
1
153
370
371
407

Q5 – Write a program to print the cross pattern given below (in the shape of X): (Medium)

```
*   *
 * *
  *
 * *
*   *
```

Q6- Write a program to print alphabet diamond pattern: (Hard)

```
      A
     ABC
    ABCDE
   ABCDEFG
ABCDEFGHI
   ABCDEFG
    ABCDE
     ABC
      A
```

Q7- Write a program to print pattern given below : (Medium)

```
  *
  *
*****
  *
  *
```

Q8 - Write a program to print a triangle of prime numbers upto given number of lines of the trinagle. (Hard)

Input1:
2

Output1:
2
3 5

Input2:
6

Output2:
```
          2
        3 5
      7 11 13
   17 19 23 29
 31 37 41 43 47
53 59 61 67 71 73
```

Q9- Write a program to check whether a prime Number can be expressed as a Sum of Two Prime Numbers. (Medium)

Input1:
13

Output1:
True

Input2:
2

Output2:
False

Q10- You are given n number of bulbs. They are all switched off. A weird fluctuation in voltage hits the circuit n times. In the 1st fluctuation all bulbs are toggled, in the 2nd fluctuation every 2nd bulb is toggled, in the 3rd fluctuation every 3rd bulb is toggled and so on. You've to find which bulbs will be switched on after n fluctuations. (Medium)

Take as input a number n, representing the number of bulbs.

Print all the bulbs that will be on after the nth fluctuation in voltage.

Input1:
10

Output1:
1 4 9

Input2:
25

Output2:
1 4 9 16 25