

Practice problems on control flow statement and loop

- Write a program which prints the following pattern (triangle). Your program will take as input an integer **n** (number of stars along base and height of the triangle) and print the pattern accordingly.

Sample Input	Sample Output
4	<pre> a b c d e f g h i j </pre>
5	<pre> a b c d e f g h i j k l m n o </pre>

- Write a C program to check whether a character given as input is an alphabet or not. If it is an alphabet, then it should also specify whether it is a vowel or a consonant.

Sample Input	Sample Output
?	Not an alphabet
R	Alphabet Consonant
E	Alphabet Vowel
a	Alphabet Vowel

- Write a C program that will take a number as input and print the following.

If the number is divisible by 3 and 7 print "TS"

If the number is divisible by only 3 print "T"

If the number is divisible by only 7 print "S"

Other print "None"

You can only switch case statements.

Sample Input	Sample Output
21	TS
9	T
13	None

- Electricity bill at a certain power distribution company is computed as follows:

First 50 units: BDT 4 per unit

Next 30 units: BDT 5 per unit

Next 20 units: BDT 6 per unit

Next any units: BDT 6.5 per unit

Write a C program that will take number of units used this month and calculate the bill in BDT.

Sample Input	Sample Output
102.5	BDT 486.25
25	BDT 100

5. Write a program that takes an integer n and computes its factors and prints in the following format.

Sample Input	Sample Output
3	1 X 3
60	1 X 60 2 x 30 3 x 20 4 x 15 5 x 12 6 x 10

6. Write a program that takes an integer and determines whether it is a prime number or not.

Sample Input	Sample Output
31	31 is a prime
25	25 is not a prime

7. Write a program which takes one integer n and one floating point number x as input and output the sum of the following series.

$$x - \frac{x^2}{2} + \frac{x^3}{3} - \frac{x^4}{4} + \cdots + \frac{(-1)^{n+1}x^n}{n}$$

Here $|x| < 1$

Sample Input	Sample Output
1000 0.2	0.182322
100 -0.5	-0.693147