

# Problems

1. Base Conversion Problem. Two numbers will be given from the console N (Number) and B (Base). You will convert N to the base B. N is given with the base 10.

Input:

14 2

Output:

1110

2. Print a triangle with the stars(\*) with the given size. There should be one space between the stars.

Input:

3

Output:

\*

\* \*

\* \* \*

Input:

1

Output:

\*

3. Read a positive integer value, and compute the following sequence: If the number is even, halve it; if it's odd, multiply by 3 and add 1. Repeat this process until the value is 1, printing out each value. Finally print out how many of these operations you performed. If the input value is less than 1, print a message containing the word "Error" and perform an exit( 0 );

Input:

9

Output:

Initial value is 9

Next value is 28

Next value is 14

Next value is 7

Next value is 22

Next value is 11

Next value is 34

Next value is 17

Next value is 52

Next value is 26

Next value is 13

Next value is 40

Next value is 20

Next value is 10

Next value is 5

Next value is 16

Next value is 8

Next value is 4

Next value is 2

Final value 1, number of steps 19

4. First read number of students, read the name of the students and their grades. Calculate the average of class. Print the number of the students which are under the average, their names and grades. (There will be maximum 100 students)

Input:

4

Ayse 50

Hakan 70

Fatma 60

Ali 32

Output:

The average of class is : 53.00

2 People are under the average:

Ayse 50.00

Ali 32.00

5. Calculating frequency of letters. You will be given a sequence of letters in lowercase and a nonletter character at the end of input('.' , ';' , '?' , '\*' , etc..). Read until nonletter character, calculate the frequency of letters and print. (Maximum 100 letter will be given)

Input:

a b g b b a g b a h .

Output:

Letters->Frequency

a->3

b->4

g->2

h->1

6. Write to function named toLowerCase and toUpperCase. These functions takes an array and a N(Number) as argument. Converts the first N elements of array to lowercase and uppercase respectively. Then write a main function get inputs from the console(first get the number of letters, then get the letters) and call that function and show elements of array. (Maximum 100 letter will be given)

```
void toLowerCase(char ar[], int N);
```

```
void toUpperCase(char ar[], int N);
```

N letter1 letter2 letter3 letter3 ... letterN

Input:

5 a B r T f

Output:

toUpperCase:

A B R T F

toLowerCase:

a b r t f

7. Write a factoiel function named factoriel get a number returns its factoriel. In main gets a number, call the factoriel function and print the factoriel. (Not recursively, make it by iteration)

```
int factoriel(int N);
```

Input:

4

Output:

24

8. Write read, print, printReverse, printDiagonal functions. Read function reads a matrix. Print function just prints and printReverse prints reversely (Rows and columns are changed). printDiagonal prints only diagonal of matrix if a square matrix. Instead of the elements not in diagonal print a space.

Write a main function and call them.

First, size of matrix will be given(rowSize and columnSize)

Input:

3 4

0 7 6 0

1 0 8 3

2 3 6 9

Output:

print function is called:

0 7 6 0

1 0 8 3

2 3 6 9

printReverse function is called:

0 1 2

7 0 3

6 8 6

0 3 9

Cannot print Diagonal.

Input:

3 3

1 0 4

3 4 5

3 6 9

Output:

print function is called:

1 0 4

3 4 5

3 6 9

printReverse function is called:

1 3 3

0 4 6

4 5 9

printDiagonal function is called:

1 4

4

3 9

9. Write a C program that reads two matrix and multiplies them, if possible. If not possible give an "Error!" message. Input will be given in the format below:

rowNumber1 colNumber2

Matrix 1

rowNumber2 colNumber2

Matrix2

Output:

rowNumber3 columnNumber3

Matrix3(Multiplied Matrix1 and Matrix2)

Input:

2 2

4 0

3 0

2 3

1 1 1

0 1 0

Output:

2 3

0 4 4

0 3 3