LAB ASSIGNMENT - 5

ARZOO KHAN

(20MCA011)

MCA

(Semester - II)

Due Date: July 15 , 2021

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CSC26: Lab – III (OOP)

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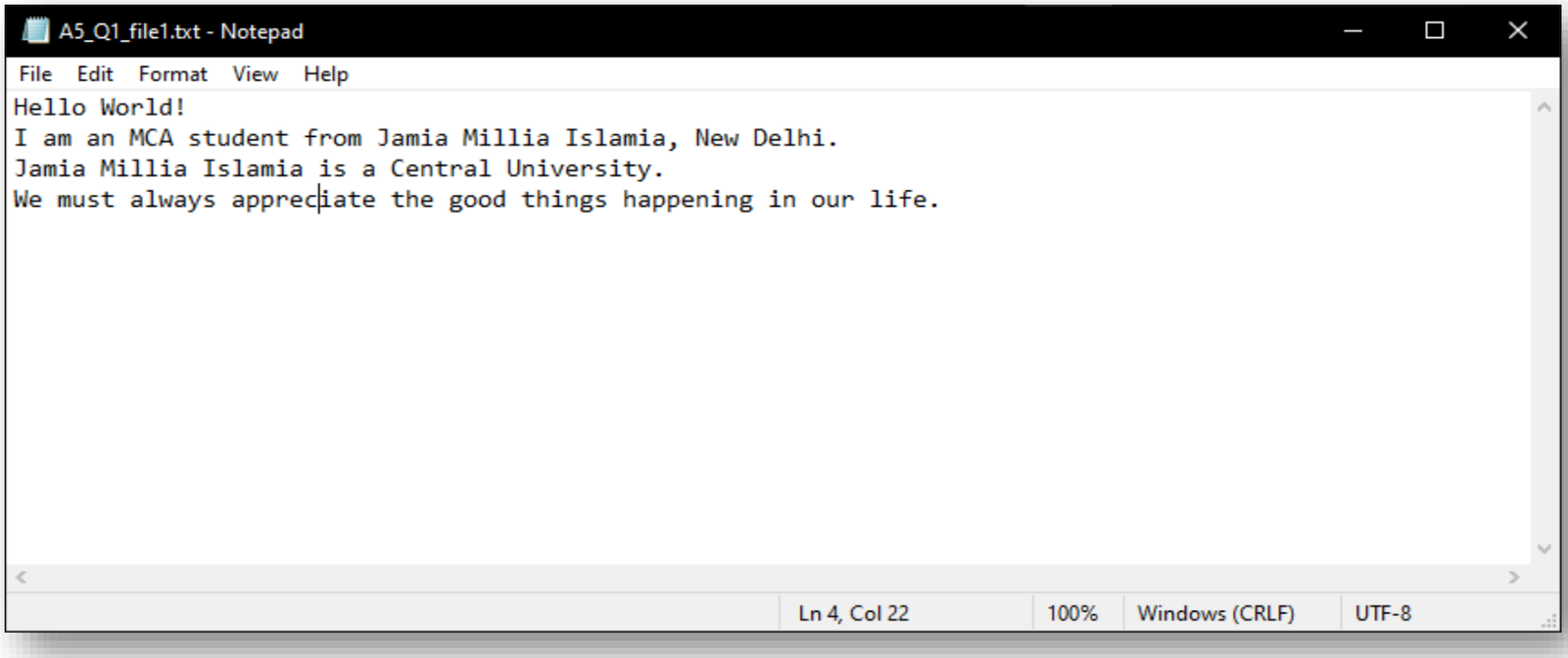
1.Write a program to merge the contents of two given files into a third file.

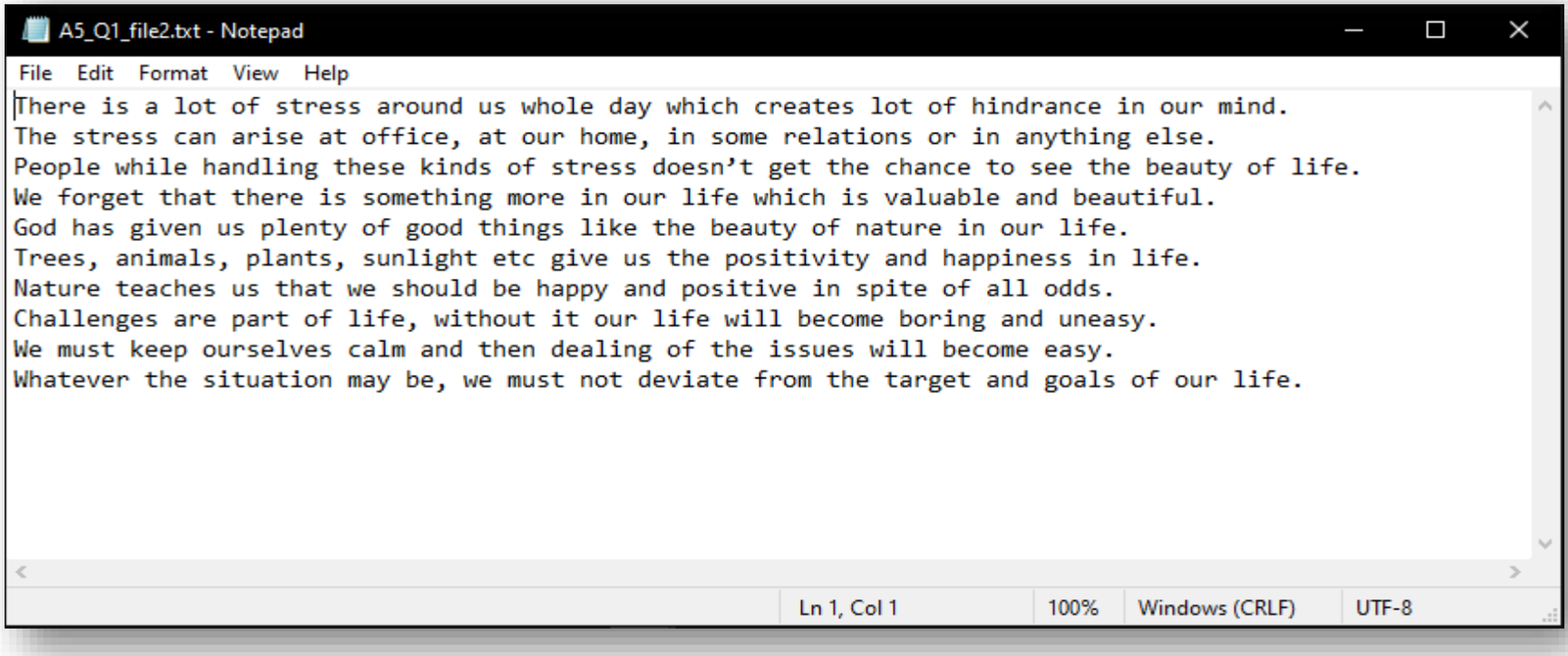
SOURCE CODE:

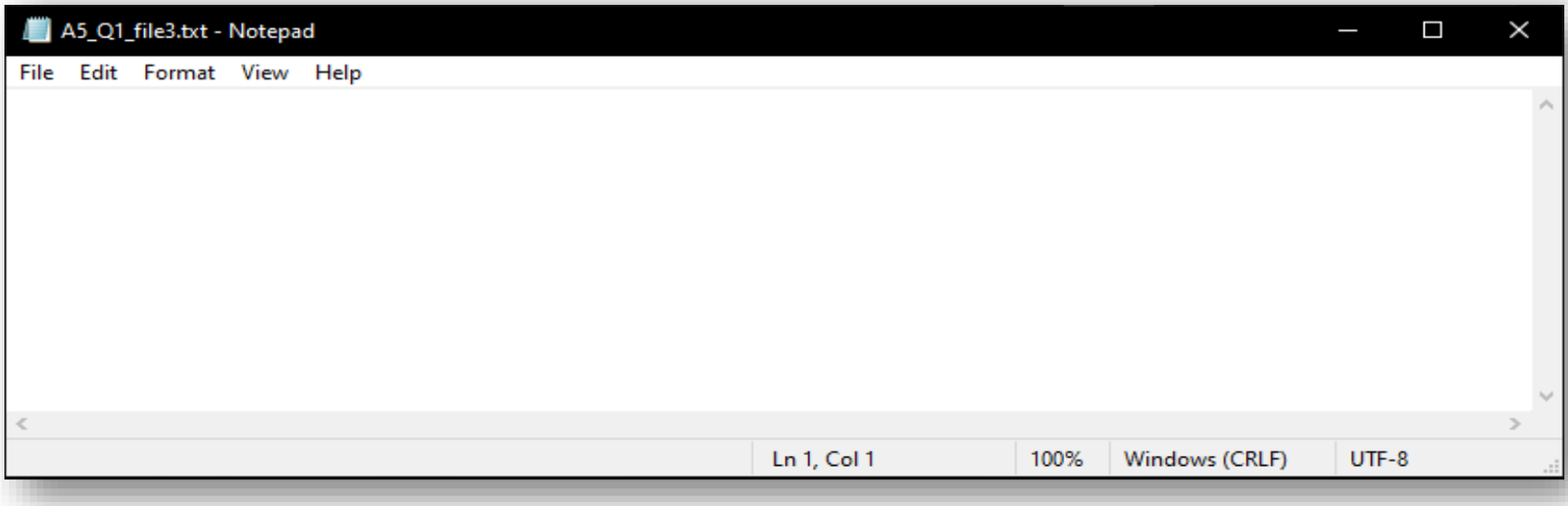
```
#include <iostream>
#include <fstream>
#include <cstdlib>
#include <conio.h>
#include <string>
using namespace std;

template <class X>
void show_file_content(X&, string);

// Driver Code
int main(void)
{
  system("cls");

  string file1 = "A5_Q1_file1.txt"; // Source File Name
  string file2 = "A5_Q1_file2.txt"; // Source File Name
  string file3 = "A5_Q1_file3.txt"; // Destination File Name

  ifstream iFile1(file1, ios::in);
  ifstream iFile2(file2, ios::in);
  fstream ioFile3(file3, ios::in | ios::out);
  string line;

  if (!iFile1 || !iFile2 || !ioFile3)
  {
    cout << " An Error has occurred while opening files!";
  }
  else
  {
    show_file_content(iFile1, file1);
    cout << endl;
    show_file_content(iFile2, file2);

    // Copying content of rFile1 into wFile3 line by line
    while (!iFile1.eof())
    {
      getline(iFile1, line, '\n');
      ioFile3 << line << "\n";
    }
```

```
    // Copying content of rFile2 into wFile3 line by line
    while (!iFile2.eof())
    {
      getline(iFile2, line, '\n');
      ioFile3 << line << "\n";
    }

    cout << "\n Content of files \'" << file1 << "\' and \'" << file2
         << "\' has been merged into the file \'" << file3 << "\'\n\n";

    show_file_content(ioFile3, file3);

    iFile1.close();
    iFile2.close();
    ioFile3.close();
  }

  cout << "\n Press any key to exit..."; getch();
  system("cls");
  return 0;
}

// Function to display the content of a file
template <class X>
void show_file_content(X& fin, string fName)
{
  int i = 1;
  string line;

  cout << "\n----------------------------------------- " << fName
       << " -----------------------------------------\n\n";

  fin.seekg(0, ios::beg);

  while (!fin.eof())
  {
    getline(fin, line);
    cout << i++ << "\t" << line << endl;
  }

  fin.seekg(0, ios::beg);

  cout << "\n-----------------------------------------------------------"
       << "-----------------------------------------------\n\n";
}
```

Content of the files before execution of the program:



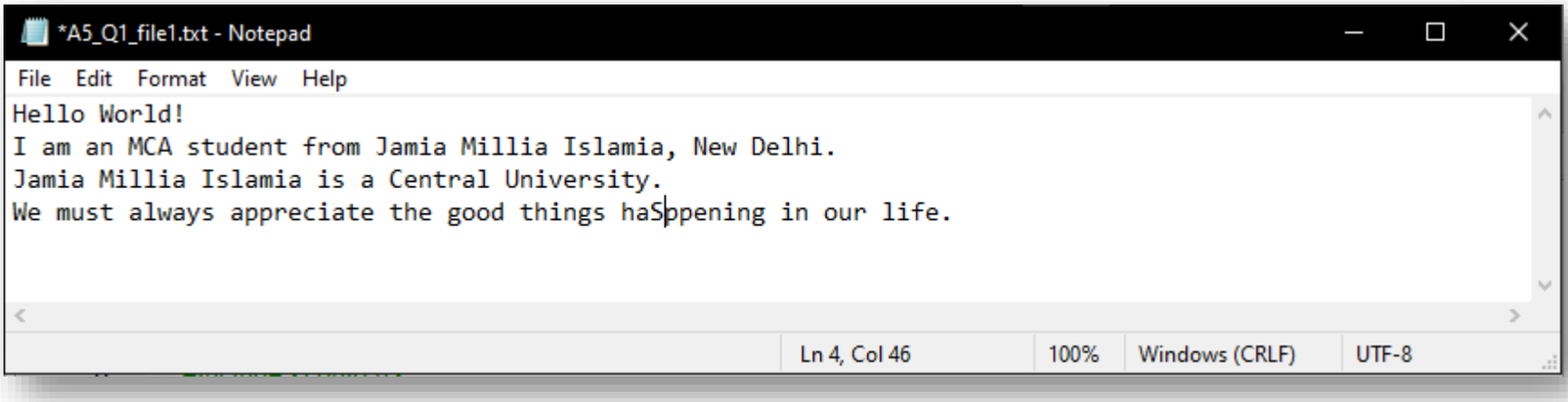


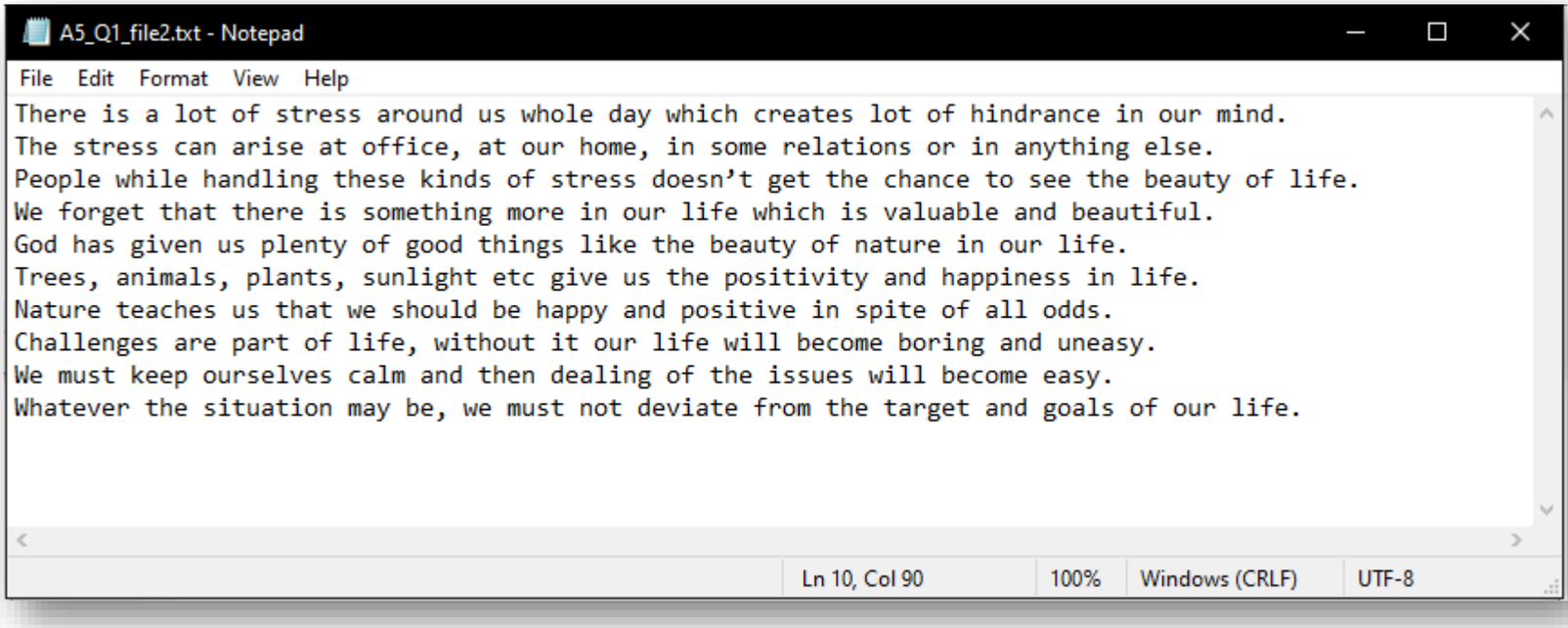


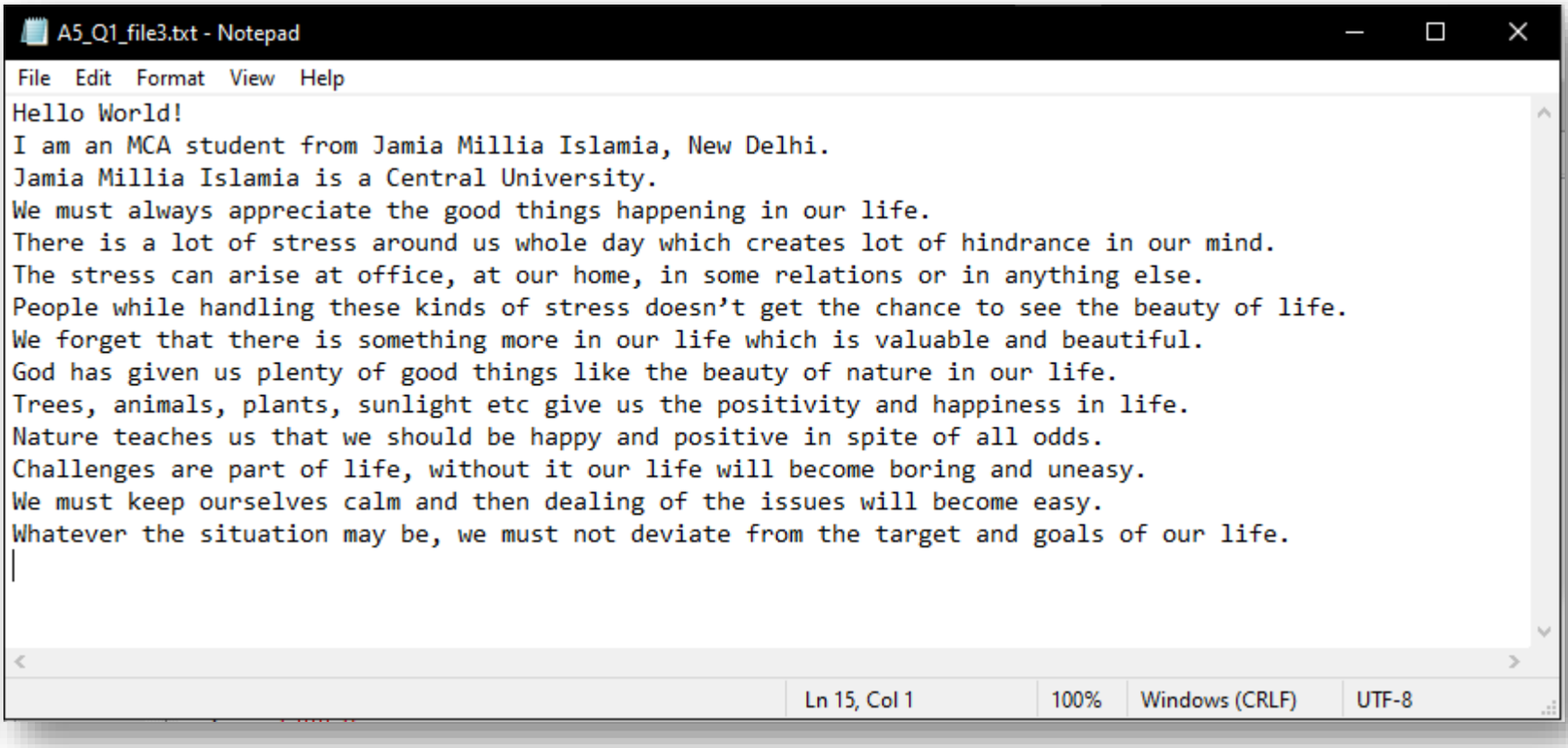
Execution of the program:

```
C:\Arzoo\JMI_MCA\Sem-2\OOP\A5_Q1.exe

---------------------------------------- A5_Q1_file1.txt ----------------------------------------

1       Hello World!
2       I am an MCA student from Jamia Millia Islamia, New Delhi.
3       Jamia Millia Islamia is a Central University.
4       We must always appreciate the good things happening in our life.

------------------------------------------------------------------------------------------------




---------------------------------------- A5_Q1_file2.txt ----------------------------------------

1       There is a lot of stress around us whole day which creates lot of hindrance in our mind.
2       The stress can arise at office, at our home, in some relations or in anything else.
3       People while handling these kinds of stress doesnΓÇÖt get the chance to see the beauty of life.
4       We forget that there is something more in our life which is valuable and beautiful.
5       God has given us plenty of good things like the beauty of nature in our life.
6       Trees, animals, plants, sunlight etc give us the positivity and happiness in life.
7       Nature teaches us that we should be happy and positive in spite of all odds.
8       Challenges are part of life, without it our life will become boring and uneasy.
9       We must keep ourselves calm and then dealing of the issues will become easy.
10      Whatever the situation may be, we must not deviate from the target and goals of our life.

------------------------------------------------------------------------------------------------


 Content of files 'A5_Q1_file1.txt' and 'A5_Q1_file2.txt' has been merged into the file 'A5_Q1_file3.txt'


---------------------------------------- A5_Q1_file3.txt ----------------------------------------

1       Hello World!
2       I am an MCA student from Jamia Millia Islamia, New Delhi.
3       Jamia Millia Islamia is a Central University.
4       We must always appreciate the good things happening in our life.
5       There is a lot of stress around us whole day which creates lot of hindrance in our mind.
6       The stress can arise at office, at our home, in some relations or in anything else.
7       People while handling these kinds of stress doesnΓÇÖt get the chance to see the beauty of life.
8       We forget that there is something more in our life which is valuable and beautiful.
9       God has given us plenty of good things like the beauty of nature in our life.
10      Trees, animals, plants, sunlight etc give us the positivity and happiness in life.
11      Nature teaches us that we should be happy and positive in spite of all odds.
12      Challenges are part of life, without it our life will become boring and uneasy.
13      We must keep ourselves calm and then dealing of the issues will become easy.
14      Whatever the situation may be, we must not deviate from the target and goals of our life.
15

------------------------------------------------------------------------------------------------


 Press any key to exit...
```

Content of the files after execution of the program:







2.Write a function in C++ to count and display the number of lines not starting with alphabet 'A' present in a text file "STORY.TXT".

Example:

If the file "STORY.TXT" contains the following lines:

The rose is red.
A girl is playing there.
Numbers are not allowed in the password.
There is a playground.
An aeroplane is in the sky.

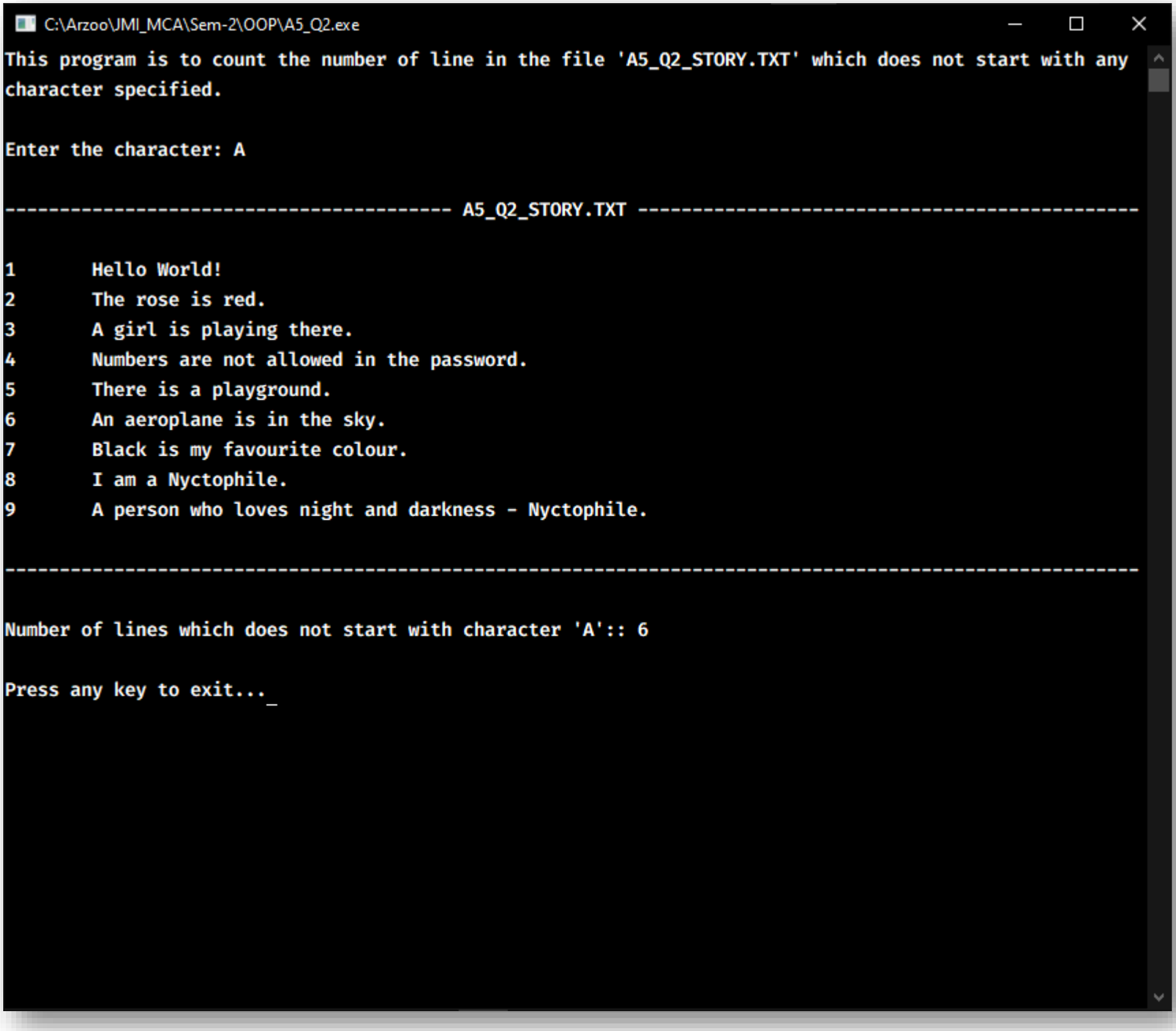
SOURCE CODE:

```
#include <iostream>
#include <fstream>
#include <conio.h>
#include <cstdlib>
#include <cstring>
using namespace std;

template <class X>
void show_file_content(X&, string);
template <class X>
int no_of_lines_not_starting_with(char, X&);

// Driver Code
int main(void)
{
  system("cls");

  string file = "A5_Q2_STORY.TXT"; // Source File Name
  ifstream fin(file);

  if (!fin)
  {
    cout << " An Error has occurred while opening file!";
  }
  else
  {
    cout << "This program is to count the number of line in the file \'"
         << file << "\' which does not start with any character specified."
         << "\n\nEnter the character: ";

    char ch; cin >> ch;
```

```
    show_file_content(fin, file);
    cout << "\nNumber of lines which does not start with character \'"
         << ch << "\':: " << no_of_lines_not_starting_with(ch, fin);
    fin.close();
  }

  cout << "\n\nPress any key to exit..."; getch();
  system("cls");
  return 0;
}

// Function to count no. of lines in a file not starting with an alphabet specified.
template <class X>
int no_of_lines_not_starting_with(char ch, X& fin)
{
  int count = 0;
  string line;
  fin.seekg(0, ios::beg);
  while (!fin.eof())
  {
    getline(fin, line);
    if (ch != line[0]) ++count;
  }
  return count;
}

// Function to display the content of a file
template <class X>
void show_file_content(X& fin, string fName)
{
  int i = 1;
  string line;

  cout << "\n----------------------------------------- " << fName
       << " -----------------------------------------\n\n";

  fin.seekg(0, ios::beg);

  while (!fin.eof())
  {
    getline(fin, line);
    cout << i++ << "\t" << line << endl;
  }

  fin.seekg(0, ios::beg);
```

```
    cout << "\n-----------------------------------------------------"
         << "-----------------------------------------------------\n";
}
```

OUTPUT:



3.Write a program using generic stack class to implement all possible stack operations using pointers.

SOURCE CODE:

```
#include <iostream>
#include <cstdlib>
#include <conio.h>
using namespace std;

// Define the default capacity of a stack
#define SIZE 10

// A class to represent a stack
template <class X>
class Stack
{
  X *arr;
  int top;
  int capacity;

public:
  Stack(int size = SIZE); // Constructor
  ~Stack();               // Destructor

  void push(X);
  X pop();
  X peep();
  void display();

  int size();
  int Capacity();
  bool isEmpty();
  bool isFull();
};

// Constructor to initialize the stack
template <class X>
Stack<X>::Stack(int size)
{
  arr = new X[size];
  capacity = size;
  top = -1;
}
```

```
// Destructor to free the stack
template <class X>
Stack<X>::~Stack()
{
  delete[] arr;
}

// Function to add an element `x` to the stack
template <class X>
void Stack<X>::push(X x)
{
  if (isFull())
  {
    cout << " Overflow\n Program Terminated\n";
    exit(EXIT_FAILURE);
  }

  cout << " Inserting " << x;
  arr[++top] = x;
}

// Function to pop the top element from the stack
template <class X>
X Stack<X>::pop()
{
  // Check for stack underflow
  if (isEmpty())
  {
    cout << " Underflow\n Program Terminated\n";
    exit(EXIT_FAILURE);
  }

  cout << " Removing " << peep();

  // Decrease stack size by 1 and (optionally) return the popped element
  return arr[top--];
}

// Function to return the top element of the stack
template <class X>
X Stack<X>::peep()
{
  if (!isEmpty())
  {
    return arr[top];
  }
```

```
  else
  {
    exit(EXIT_FAILURE);
  }
}

// Utility function to display the content in the stack
template<class X>
void Stack<X>::display()
{
  if (isEmpty())
  {
    exit(EXIT_FAILURE);
  }
  else
  {
    cout << " top->\t" << arr[top] << endl;
    for(int i = top - 1; i >= 0; i--)
    {
      cout << " \t" << arr[i] << endl;
    }
  }
}

// Utility function to return the size of the stack
template <class X>
int Stack<X>::size()
{
  return top + 1;
}

// Utility function to return the size of the stack
template <class X>
int Stack<X>::Capacity()
{
  return capacity;
}

// Utility function to check if the stack is empty or not
template <class X>
bool Stack<X>::isEmpty()
{
  return top == -1; // or return size() == 0;
}

// Utility function to check if the stack is full or not
```

```
template <class X>
bool Stack<X>::isFull()
{
  return top == capacity - 1; // or return size() == capacity;
}

// Driver Code
int main()
{
  system("cls");

  Stack<string> stack(15);
  string input;
  int choice;

  while (true)
  {
    system("cls");

    cout << " STACK PRIMITIVE OPERATIONS " << endl
         << "----------------------------" << endl
         << " 1. push()" << endl
         << " 2. pop()" << endl
         << " 3. peep()" << endl
         << " 4. size()" << endl
         << " 5. capacity()" << endl
         << " 6. display()" << endl
         << " 7. isEmpty()" << endl
         << " 8. isFull()" << endl
         << " 9. Quit" << endl
         << "\n Enter your choice: ";
    cin >> choice;

    switch(choice)
    {
        case 1:   if(stack.isFull()) cout << "\n Stack is Full!";
                  else
                  {
                    cout << "\n Enter a string to push into the stack: ";
                    cin.ignore(1, '\n');
                    getline(cin, input);
                    cout << endl;
                    stack.push(input);
                  }
                  break;
```

```
        case 2:   if(stack.isEmpty()) cout << "\n Stack is empty!";
                  else
                  {
                    cout << endl;
                    stack.pop();
                  }
                  break;

        case 3:   if(stack.isEmpty()) cout << "\n Stack is empty!";
                  else cout << "\n Top element of the stack is: " << stack.peep();
                  break;

        case 4:   cout << "\n Size of the stack is: " << stack.size();
                  break;

        case 5:   cout << "\n Capacity of the stack is: " << stack.Capacity();
                  break;

        case 6:   if(stack.isEmpty()) cout << "\n Stack is Empty!";
                  else
                  {
                    cout << "\n Elements present in the stack are: \n\n";
                    stack.display();
                  }
                  break;

        case 7:   if(stack.isEmpty()) cout << "\n Stack is empty!";
                  else cout << "\n Stack is not empty.";
                  break;

        case 8:   if(stack.isFull()) cout << "\n Stack is full!";
                  else cout << "\n Stack is not full.";
                  break;

        case 9:   system("cls");
                  return 0;

        default:  cout << "\n Invalid Choice!";

    }
    cout << "\n\n Press any key to continue...";
    getch();

  }

}
```

OUTPUT :

```
Select C:\Arzoo\JMI_MCA\Sem-2\OOP\A5_Q3.exe
---------------------------
STACK PRIMITIVE OPERATIONS
---------------------------
1. push()
2. pop()
3. peep()
4. size()
5. capacity()
6. display()
7. isEmpty()
8. isFull()
9. Quit
---------------------------

Enter your choice: 1

Enter a string to push into the stack: Hello

Inserting -> Hello

Enter a string to push into the stack: World!

Inserting -> World!

Enter a string to push into the stack: Arzoo

Inserting -> Arzoo

Enter a string to push into the stack: Khan

Inserting -> Khan

Enter a string to push into the stack: Jamia

Inserting -> Jamia

Enter a string to push into the stack: Millia

Inserting -> Millia

Enter a string to push into the stack: Islamia

Inserting -> Islamia

Enter a string to push into the stack: New Delhi

Inserting -> New Delhi

Press any key to continue...
```

```
---------------------------
STACK PRIMITIVE OPERATIONS
---------------------------
1. push()
2. pop()
3. peep()
4. size()
5. capacity()
6. display()
7. isEmpty()
8. isFull()
9. Quit
---------------------------

Enter your choice: 3

Top element of the stack is: New Delhi

Press any key to continue...

---------------------------
STACK PRIMITIVE OPERATIONS
---------------------------
1. push()
2. pop()
3. peep()
4. size()
5. capacity()
6. display()
7. isEmpty()
8. isFull()
9. Quit
---------------------------

Enter your choice: 4

Size of the stack is: 8

Press any key to continue...
---------------------------
STACK PRIMITIVE OPERATIONS
---------------------------
1. push()
2. pop()
3. peep()
4. size()
5. capacity()
6. display()
7. isEmpty()
8. isFull()
9. Quit
---------------------------

Enter your choice: 5

Capacity of the stack is: 15

Press any key to continue...
```

```
---------------------------
STACK PRIMITIVE OPERATIONS
---------------------------
1. push()
2. pop()
3. peep()
4. size()
5. capacity()
6. display()
7. isEmpty()
8. isFull()
9. Quit
---------------------------

Enter your choice: 6

Elements present in the stack are:

top->  New Delhi
       Islamia
       Millia
       Jamia
       Khan
       Arzoo
       World!
       Hello


Press any key to continue...



---------------------------
STACK PRIMITIVE OPERATIONS
---------------------------
1. push()
2. pop()
3. peep()
4. size()
5. capacity()
6. display()
7. isEmpty()
8. isFull()
9. Quit
---------------------------

Enter your choice: 7

Stack is not empty.

Press any key to continue...
```

```
---------------------------
STACK PRIMITIVE OPERATIONS
---------------------------
1. push()
2. pop()
3. peep()
4. size()
5. capacity()
6. display()
7. isEmpty()
8. isFull()
9. Quit
---------------------------

Enter your choice: 2

Removing -> New Delhi

Press any key to continue...


---------------------------
STACK PRIMITIVE OPERATIONS
---------------------------
1. push()
2. pop()
3. peep()
4. size()
5. capacity()
6. display()
7. isEmpty()
8. isFull()
9. Quit
---------------------------

Enter your choice: 6

Elements present in the stack are:

top->  Islamia
       Millia
       Jamia
       Khan
       Arzoo
       World!
       Hello


Press any key to continue...
```

```
---------------------------
 STACK PRIMITIVE OPERATIONS
---------------------------
 1. push()
 2. pop()
 3. peep()
 4. size()
 5. capacity()
 6. display()
 7. isEmpty()
 8. isFull()
 9. Quit
---------------------------

 Enter your choice: 8

 Stack is not full.

 Press any key to continue...


---------------------------
 STACK PRIMITIVE OPERATIONS
---------------------------
 1. push()
 2. pop()
 3. peep()
 4. size()
 5. capacity()
 6. display()
 7. isEmpty()
 8. isFull()
 9. Quit
---------------------------

 Enter your choice: 9_


Process returned 0 (0x0)   execution time : 2197.176 s
Press any key to continue.
```

4.Write a program of your choice to handle the occurring exceptions in the program using multiple catch statements.

SOURCE CODE:

```
// C++ program of a simple calculator to ilustrate the exception handling concept


#include <iostream>
#include <cstdlib>
#include <conio.h>
#include <cmath>
using namespace std;
#define PI 3.14159265

int main(void)
{
  system("cls");

  double a, b;
  char op;

  while(true)
  {
      cout << " _____________________________________________ " << endl
           << "|                  CALCULATOR                 |" << endl
           << "|---------------------------------------------|" << endl
           << "| Operator |             Function             |" << endl
           << "|----------|----------------------------------|" << endl
           << "|          |                                  |" << endl
           << "|    v     |     " << char(251) << "a      |  Square Root      |" << endl
           << "|    2     |     a" << char(253) << "      |  Square           |" << endl
           << "|    ^     |    a ^ b    |  Power             |" << endl
           << "|    +     |    a + b    |  Addition          |" << endl
           << "|    -     |    a - b    |  Subtractiom       |" << endl
           << "|    *     |    a x b    |  Multiplication    |" << endl
           << "|    /     |    a " << char(246) << " b    |  Division         |" << endl
           << "|    s     |   sin(a" << char(248) << ")   |  Sine             |" << endl
           << "|    c     |   cos(a" << char(248) << ")   |  Cosine           |" << endl
           << "|    t     |   tan(a" << char(248) << ")   |  Tangent          |" << endl
           << "|    0     |   exit(0)   |  Exit              |" << endl
           << "|__________|_____________|____________________|" << endl
           << "\n Choose operator: ";
      cin >> op;
```

```
cout << "\n Enter:\n";

switch (op)
{
  case '+':   cout << " a = "; cin >> a;
              cout << " b = "; cin >> b;
              cout << "\n " << a << " + " << b << " = " << a + b;
              break;

  case '-':   cout << " a = "; cin >> a;
              cout << " b = "; cin >> b;
              cout << "\n " << a << " - " << b << " = " << a - b;
              break;

  case '*':   cout << " a = "; cin >> a;
              cout << " b = "; cin >> b;
              cout << "\n " << a << " x " << b << " = " << a * b;
              break;

  case '/':   cout << " a = "; cin >> a;
              cout << " b = "; cin >> b;

              try
              {
                if (b == 0)
                {
                  throw b;
                }
                cout << "\n " << a << " " << char(246) << " " << b << " = " << a / b;
              }
              catch(double ex)
              {
                cout << "\n Exception: Division by 0 is undefined!";
              }
              break;

  case 'v':   cout << " " << char(251) << "a = " << char(251); cin >> a;

              if (a >= 0)
              {
                cout << "\n " << char(251) << a << " = " << sqrt(a);
              }

              else
              {
                cout << "\n " << char(251) << a << " = " << sqrt((-a)) << " i";
```

```
            }

            break;

case '2':   cout << " a = "; cin >> a;
            cout << "\n " << a << char(253) << " = " << a * a;
            break;

case '^':   cout << " a = "; cin >> a;
            cout << " b = "; cin >> b;

            try
            {
              if(a == 0 && b == 0)
              {
                throw a;
              }
              cout << "\n " << a << " ^ " << b << " = " << pow(a, b);
            }

            catch(double ex)
            {
              cout << "\n Exception: 0 to the power of 0 is undefined!";
            }

            break;

case 's':   cout << " a" << char(248) <<" = "; cin >> a;
            cout << "\n sin(" << a << char(248) << ") = " << sin(a * PI / 180);
            break;

case 'c':   cout << " a" << char(248) <<" = "; cin >> a;
            cout << "\n cos(" << a << char(248) << ") = " << cos(a * PI / 180);
            break;

case 't':   cout << " a" << char(248) <<" = "; cin >> a;

            try
            {
              if (int(a) % 90 == 0 && int(a) % 180 != 0)
              {
                throw a;
              }
              cout << "\n tan(" << a << char(248) << ") = " << tan(a * PI / 180);
            }
```

```
                    catch(...)
                    {
                      cout << "\n Exception: tan is undefined when angle is odd multiple of 90"
                           << char(248) << ".";
                    }
                    break;

        case '0':   system("cls");
                    return 0;

        default:    cout << "\n Invalid Choice!";

      }

      cout << "\n\n Press any key to continue...";
      getch();
      system("cls");
  }
}
```

OUTPUT :

```
C:\Arzoo\JMI_MCA\Sem-2\OOP\A5_Q4.exe

 ------------------------------------------
|                CALCULATOR                |
|------------------------------------------|
| Operator |            Function           |
|----------|-------------------------------|
|          |             |                 |
|    v     |     √a      |  Square Root    |
|    2     |     a²      |  Square         |
|    ^     |    a ^ b    |  Power          |
|    +     |    a + b    |  Addition       |
|    -     |    a - b    |  Subtractiom    |
|    *     |    a x b    |  Multiplication |
|    /     |    a ÷ b    |  Division       |
|    s     |   sin(a°)   |  Sine           |
|    c     |   cos(a°)   |  Cosine         |
|    t     |   tan(a°)   |  Tangent        |
|    0     |   exit(0)   |  Exit           |
|__________|_____________|_________________|

Choose operator: v

Enter:
√a = √64

√64 = 8

Press any key to continue...
```

```
_____________________________________________
|                CALCULATOR                   |
|---------------------------------------------|
| Operator |             Function             |
|----------|----------------------------------|
|          |             |                    |
|    v     |     √a      |  Square Root       |
|    2     |     a²      |  Square            |
|    ^     |    a ^ b    |  Power             |
|    +     |    a + b    |  Addition          |
|    -     |    a - b    |  Subtractiom       |
|    *     |    a x b    |  Multiplication    |
|    /     |    a ÷ b    |  Division          |
|    s     |   sin(a°)   |  Sine              |
|    c     |   cos(a°)   |  Cosine            |
|    t     |   tan(a°)   |  Tangent           |
|    0     |   exit(0)   |  Exit              |
|__________|_____________|____________________|

Choose operator: 2

Enter:
a = 8

8² = 64

Press any key to continue...

_____________________________________________
|                CALCULATOR                   |
|---------------------------------------------|
| Operator |             Function             |
|----------|----------------------------------|
|          |             |                    |
|    v     |     √a      |  Square Root       |
|    2     |     a²      |  Square            |
|    ^     |    a ^ b    |  Power             |
|    +     |    a + b    |  Addition          |
|    -     |    a - b    |  Subtractiom       |
|    *     |    a x b    |  Multiplication    |
|    /     |    a ÷ b    |  Division          |
|    s     |   sin(a°)   |  Sine              |
|    c     |   cos(a°)   |  Cosine            |
|    t     |   tan(a°)   |  Tangent           |
|    0     |   exit(0)   |  Exit              |
|__________|_____________|____________________|

Choose operator: /

Enter:
a = 12
b = 0

Exception: Division by 0 is undefined!

Press any key to continue..._
```

```
_____________________________________
|               CALCULATOR            |
|-------------------------------------|
| Operator |          Function        |
|----------|--------------------------|
|          |           |              |
|    v     |     √a    | Square Root  |
|    2     |     a²    | Square       |
|    ^     |   a ^ b   | Power        |
|    +     |   a + b   | Addition     |
|    -     |   a - b   | Subtractiom  |
|    *     |   a x b   | Multiplication |
|    /     |   a ÷ b   | Division     |
|    s     |  sin(a°)  | Sine         |
|    c     |  cos(a°)  | Cosine       |
|    t     |  tan(a°)  | Tangent      |
|    0     |  exit(0)  | Exit         |
|__________|___________|______________|

Choose operator: t

Enter:
a° = 90

Exception: tan is undefined when angle is odd multiple of 90°.

Press any key to continue...

_____________________________________
|               CALCULATOR            |
|-------------------------------------|
| Operator |          Function        |
|----------|--------------------------|
|          |           |              |
|    v     |     √a    | Square Root  |
|    2     |     a²    | Square       |
|    ^     |   a ^ b   | Power        |
|    +     |   a + b   | Addition     |
|    -     |   a - b   | Subtractiom  |
|    *     |   a x b   | Multiplication |
|    /     |   a ÷ b   | Division     |
|    s     |  sin(a°)  | Sine         |
|    c     |  cos(a°)  | Cosine       |
|    t     |  tan(a°)  | Tangent      |
|    0     |  exit(0)  | Exit         |
|__________|___________|______________|

Choose operator: t

Enter:
a° = 45

tan(45°) = 1

Press any key to continue...
```

```
_____________________________________
|                CALCULATOR                |
|------------------------------------------|
| Operator |            Function             |
|----------|---------------------------------|
|          |             |                   |
|    v     |     √a      |  Square Root      |
|    2     |     a²      |  Square           |
|    ^     |    a ^ b    |  Power            |
|    +     |    a + b    |  Addition         |
|    -     |    a - b    |  Subtractiom      |
|    *     |    a x b    |  Multiplication   |
|    /     |    a ÷ b    |  Division         |
|    s     |   sin(a°)   |  Sine             |
|    c     |   cos(a°)   |  Cosine           |
|    t     |   tan(a°)   |  Tangent          |
|    0     |   exit(0)   |  Exit             |
|__________|_____________|___________________|

Choose operator: ^

Enter:
a = 0
b = 0

Exception: 0 to the power of 0 is undefined!

Press any key to continue..._

_____________________________________
|                CALCULATOR                |
|------------------------------------------|
| Operator |            Function             |
|----------|---------------------------------|
|          |             |                   |
|    v     |     √a      |  Square Root      |
|    2     |     a²      |  Square           |
|    ^     |    a ^ b    |  Power            |
|    +     |    a + b    |  Addition         |
|    -     |    a - b    |  Subtractiom      |
|    *     |    a x b    |  Multiplication   |
|    /     |    a ÷ b    |  Division         |
|    s     |   sin(a°)   |  Sine             |
|    c     |   cos(a°)   |  Cosine           |
|    t     |   tan(a°)   |  Tangent          |
|    0     |   exit(0)   |  Exit             |
|__________|_____________|___________________|

Choose operator: ^

Enter:
a = 2
b = 10

2 ^ 10 = 1024

Press any key to continue..._
```

```
 ------------------------------------------
|                CALCULATOR                |
|------------------------------------------|
| Operator |            Function           |
|----------|-------------------------------|
|          |             |                 |
|    v     |     √a      |  Square Root    |
|    2     |     a²      |  Square         |
|    ^     |    a ^ b    |  Power          |
|    +     |    a + b    |  Addition       |
|    -     |    a - b    |  Subtractiom    |
|    *     |    a x b    |  Multiplication |
|    /     |    a ÷ b    |  Division       |
|    s     |   sin(a°)   |  Sine           |
|    c     |   cos(a°)   |  Cosine         |
|    t     |   tan(a°)   |  Tangent        |
|    0     |   exit(0)   |  Exit           |
|__________|_____________|_________________|

 Choose operator: c

 Enter:
 a° = 0

 cos(0°) = 1

 Press any key to continue...
 ------------------------------------------
|                CALCULATOR                |
|------------------------------------------|
| Operator |            Function           |
|----------|-------------------------------|
|          |             |                 |
|    v     |     √a      |  Square Root    |
|    2     |     a²      |  Square         |
|    ^     |    a ^ b    |  Power          |
|    +     |    a + b    |  Addition       |
|    -     |    a - b    |  Subtractiom    |
|    *     |    a x b    |  Multiplication |
|    /     |    a ÷ b    |  Division       |
|    s     |   sin(a°)   |  Sine           |
|    c     |   cos(a°)   |  Cosine         |
|    t     |   tan(a°)   |  Tangent        |
|    0     |   exit(0)   |  Exit           |
|__________|_____________|_________________|

 Choose operator: 0

Process returned 0 (0x0)   execution time : 91.888 s
Press any key to continue.
```

*****