Bahria University, Karachi Campus



LAB EXPERIMENT NO.

12

LIST OF TASKS

TASK NO.	OBJECTIVE
1	Write a program that takes a positive integer from the console and prints the square root of this integer. If the input is negative or invalid print "Invalid Number" in the console. In all cases print "Good Bye".
2	Write a method ReadNumber(int start, int end) that reads an integer array of 10 values from the console in the range [startend]. In case the input integer is not valid, or it is not in the required range throw appropriate exception.
3	Write a method that takes as a parameter the name of a text file then, reads the file and returns its content as string. What should the method do if an exception is thrown?

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Exception Handling

Task 1

Write a program that takes a positive integer from the console and prints the square root of this integer. If the input is negative or invalid print "Invalid Number" in the console. In all cases print "Good Bye".

Solution:

```
using System;
namespace LAB_12
    class Program
       static void Main(string[] args)
           try
               Console.WriteLine("Enter an integer: ");
               int i = int.Parse(Console.ReadLine());
               if (i >= 0)
                   Console.WriteLine("Square root of {0} = {1}", i, Math.Sqrt(i));
               else
                   Console.WriteLine("Invalid Number!");
               Console.WriteLine("GOOD BYE :)");
           catch(Exception e)
               Console.WriteLine("Invalid Number! \nGOOD BYE :)");
       }
                                zain
   }
}
```

Output:

```
C:\WINDOWS\system32\cmd.exe

Enter an integer:
-3
Invalid Number!
GOOD BYE :)
Press any key to continue . . .

C:\WINDOWS\system32\cmd.exe —

Enter an integer:
4
Square root of 4 = 2
GOOD BYE :)
Press any key to continue . . .
```

```
C:\WINDOWS\system32\cmd.exe

Enter an integer:
5.7

Invalid Number!

GOOD BYE :)

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

Exception Handling

Task 2

Write a method ReadNumber(int start, int end) that reads an integer array of 10 values from the console in the range [start...end]. In case the input integer is not valid, or it is not in the required range throw appropriate exception.

Solution:

```
using System;
namespace LAB_12
    class Program
        static void Main(string[] args)
                Console.Write("State starting value: ");
                int start = int.Parse(Console.ReadLine());
                Console.Write("State ending value: ");
                int end = int.Parse(Console.ReadLine());
                ReadNumber(start, end);
        public static void ReadNumber(int start, int end)
            try
                int[] arr = new int[10];
                Console.WriteLine("Enter 10 values within the range [{0} to {1}]", start, end);
                for (int i = 0; i < 10; i++)
                    arr[i] = int.Parse(Console.ReadLine());
                    if (arr[i] >= start && arr[i] <= end)</pre>
                        continue;
                        throw new Exception("INPUT INTEGER IS NOT VALID OR OUT OF RANGE.");
            catch(Exception e) { Console.WriteLine(e.Message); }
        }
   }
```

Output:

```
State starting value: 39
State ending value: 96
Enter 10 values within the range [39 to 96]
69
96
45
53
18
INPUT INTEGER IS NOT VALID OR OUT OF RANGE.
Press any key to continue . . . .
```

Exception Handling

Task 3

Write a method that takes as a parameter the name of a text file then, reads the file and returns its content as string. What should the method do if an exception is thrown?

Solution:

```
using System;
using System.IO;
using System.Text;
namespace LAB_12
    class Program
        static void Main(string[] args)
            File();
        public static void File()
            try
                Console.Write("Enter file name: ");
                string name = Console.ReadLine();
                string filename = (name + ".txt");
                Read(filename);
            catch(Exception)
                Console.WriteLine("Incorrect file name");
        public static void Read(string filename)
            var path = filename;
            var fs = new FileStream(path, FileMode.Open, FileAccess.Read);
            var sr = new StreamReader(fs, Encoding.UTF8);
            string print = sr.ReadToEnd();
            Console.WriteLine(print);
    }
}
```

Output:

```
Enter file name: samplefile
What are Exceptions
Exceptions are a type of error that occurs during the execution of an application. Errors are typically problems that are not expected. Whereas, exceptions are expected to happen within the application's code for various reasons.

Applications use exception handling logic to explicitly handle the exceptions when they happen. Exceptions can occur for a wide variety of reasons.

From the infamous NullReferenceException to a database query timeout.

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