ASSIGNMENT -7

1. Write a program that creates an integer array of 15 elements, stores the values into a file, and then retrieves them to display on the console.
2. Write a program to input two integers and divide them. Use a try-catch block to handle the DivideByZeroException and display an appropriate message. Further, if the data type of the elements do not match with defined type then throw an exception too.

3. Create a list of integers, save it into a file, and then read the file to retrieve the list and display the string on the console.
4. Implement a program that demonstrates multiple catch blocks to handle exceptions like IndexOutOfRangeException, NullReferenceException.

5. Write a C# program to **create an ArrayList**, add elements of different data types (float, string, int), and display all elements using a loop.
6. Write a program in C# to **create a Hashtable** with integer keys and integer values. Insert three key-value pairs and display them using a loop.

7. Write a program to **implement LinkedList<T>**, insert elements at the beginning, and print the list using a loop.
8. Write a program to **implement Stack**, insert five elements and remove them.

9. Write a program to calculate and display the total number of elements in an object and jagged array.
10. Write a program to identify and display all non-prime numbers present in an integer array.

11. Write a program to find and display the second largest and smallest numbers in an array.
12. Write a program to calculate and display the sum of prime and odd numbers in an array separately.

13. Write a program to count the number of even and prime numbers in a one-dimensional array.
14. Implement a program to search for a specific element in an array using binary search.

15. Write a program to calculate the sum of the lower triangle elements of a square matrix.
16. Write a C# program to perform linear search on a sorted jagged array.

17. Create a Student class with properties (ID, Father_Name, Marks). Store multiple students in an object array and sort them by Marks. Further, store sorted students in a Linked List<T> and display them.
18. Write a program to count the number of prime and odd numbers in a one-dimensional array.

19. Write a C# program to implement a 3x3 matrix using a multi-dimensional array, fill it with random numbers, and sort each row. Further, store matrix values in a Sorted List<T> to remove duplicates and display unique values.
20. Write a C# program to implement a program that reads an array of filenames and searches for a specific file in the system. Further, store valid file names in a Directory collection and allow the user to retrieve details about a specific file.

21. Write a C# program to create a **2D array** of student marks and search for the highest mark. Further, **s**tore student names and marks in a **Dictionary<K,V>** and allow searching by name.
22. Write a C# program to implement **Binary Search** in a **jagged array** of employee IDs. Further, store IDs in a **Stack<T>**, push/pop operations for LIFO retrieval.

23. Write a C# program to create a **Product class** (ID, Name, Price) and store objects in an array by price. Further, use a **Queue<T>** to manage product processing (FIFO order).
24. Write a program to calculate the sum of the diagonal elements of a square matrix.