

**AIR UNIVERSITY E-9 ISLAMABAD**

**DEPARTMENT OF COMPUTER SCIENCE**

**DATA STRUCTURE PROJECT**

**Group Members:**

* **Abeera Zainab (232997)**
* **Sardar Muhammad Ali Khan**
* **Farhan Ali**

**SUBMITTED BY:**

**SIR TAUQEER SAJID**

**PROJECT NAME:**

***“TEXT EDITOR”***

# **OBJECTIVES OF TEXT EDITOR:**

* Implement core text editing features such as insert, delete, copy, and paste using optimal data structures like arrays, linked lists, or trees.
* Provide advanced functionalities such as syntax highlighting, text search, and undo-redo operations, showcasing algorithmic implementation.
* Optimize memory usage and runtime efficiency to demonstrate the practical application of DSA principles.
* Include visualization tools to display the working of underlying data structures and algorithms during operations.
* Ensure cross-platform compatibility and ease of use by focusing on intuitive UI/UX design.
* Foster learning by embedding tooltips and documentation about the algorithms and data structures used.

# **AIM OF TEXT EDITOR:**

 To design and develop an efficient text editor that integrates fundamental and advanced data structures and algorithms.

 To provide a platform for students and professionals to understand the real-world application of DSA in software development.

 To ensure the editor is lightweight, fast, and user-friendly for diverse text editing tasks.

**Working Of Abeera In Project :**

* Stack Implementation
* The stack will enable efficient and organized undo functionality, making the editor user-friendly and error-tolerant, track changes and reverse changes.
* Order of Operations: The stack ensures that the most recent action is undone first, following a Last In, First Out (LIFO) structure.

**Working Of Sardar Muhammad Ali Khan:**

* Linked list Implementation
* The linked list ensures flexible and efficient text management, making it easy to insert, delete, or move lines of text in the editor. It provides scalability and simplifies handling text of varying lengths, dynamic storage , operations like (insertion , traversal, deletion )

**Working Of Farhan Ali:**

* Implementation of Main Menu
* The main function provides a menu-based interface for the text editor. It lets the user Insert, delete, move, or replace text. Save text to a file or open a file. Undo recent actions. Display all text. It runs in a loop, taking user input and calling the relevant functions in the Text Editor class until the user chooses to exit.