DATA STRUCTURES PROJECT REPORT
NOTEPAD

Group Members:
Laiba Arshad 19L-1119
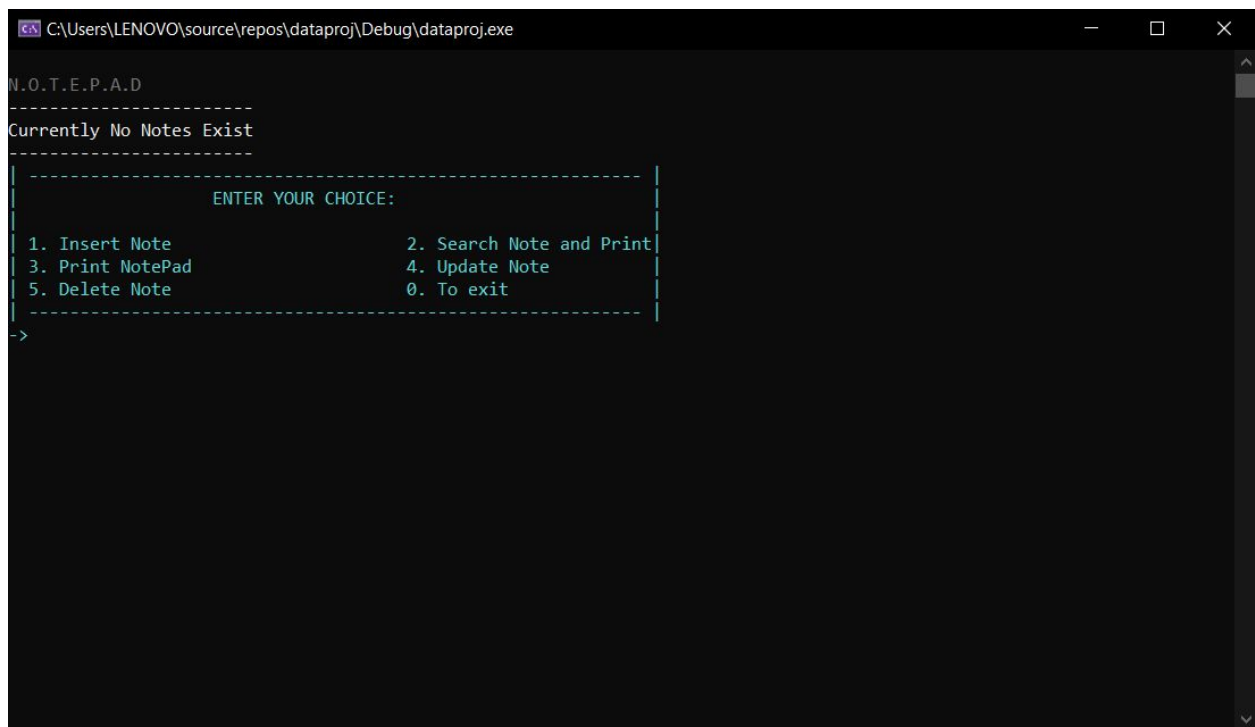Najia Ikhlaq 19L-1169
Ayesha Rizwan 19L-2308

OVERVIEW:
We made a notepad using an AVL tree, the notes being the nodes of the tree and the nodes containing a doubly list with a char at each node of the list. It is, perhaps, a tree of lists.
Each char inserted in a note(node of an avl) is actually a node of the doubly linked list, i.e a doubly list of characters is the data of each node of the AVL. The key of the node of an AVL is a unique ID of the note that the user gives.

Notepad Functionalities :

How it looks initially

- **Insert**
  -in a new notepad with no existing notes
  -in an old notepad with multiple notes inserted already
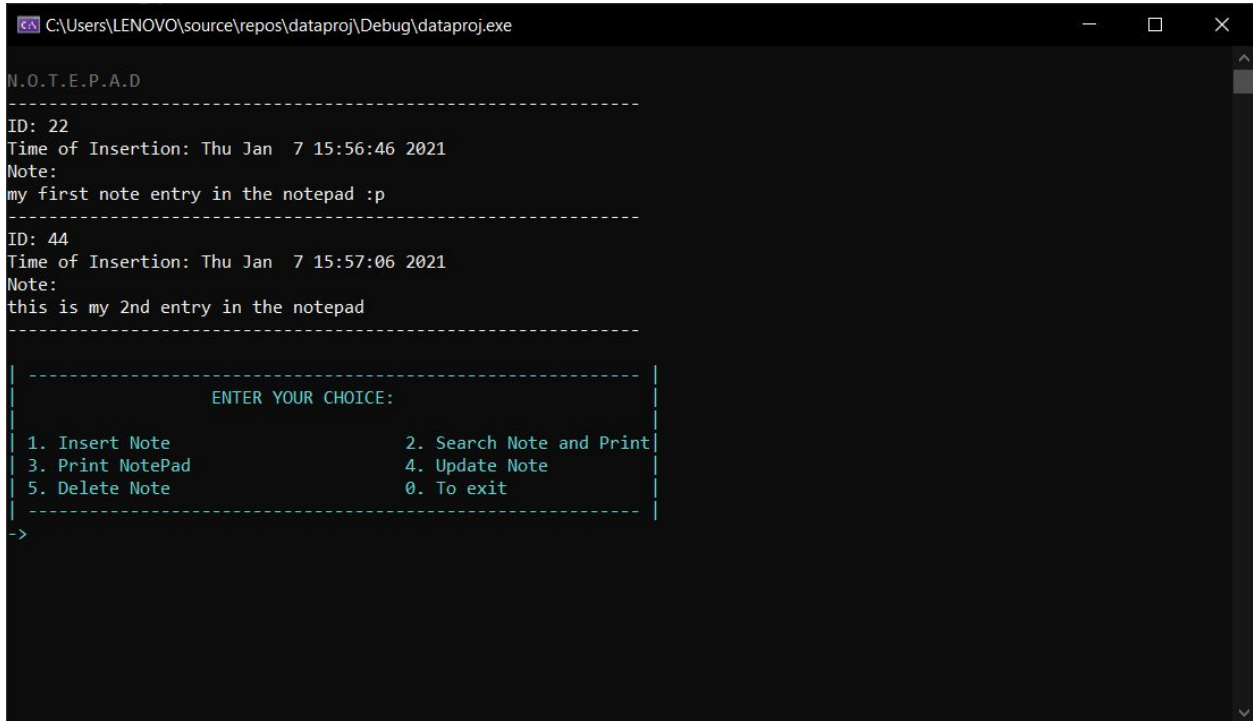
Before insertion:

After insertion:

After exiting the notepad and opening it again you get to view the already inserted notes like this:

The notes inserted in the AVL are saved in a file (NotePad.txt) before exiting. That means when a user enters 0, all the notes in the AVL are written in the file. This file also handles the updated and deleted notes. The note deleted or updated in the AVL (Notepad) is also updated or deleted in the file.

- **Update**
  - -updates a recently added note
  - -allows update of an already existing note

Before update:

```
N.O.T.E.P.A.D
| ----------------------------------------------------- |
|                    ENTER YOUR CHOICE:                 |
|                                                       |
| 1. Insert Note                 2. Search Note and Print|
| 3. Print NotePad               4. Update Note         |
| 5. Delete Note                 0. To exit             |
| ----------------------------------------------------- |
-> 4
Enter ID of note:
22
Press ESC(escape) to exit your note.
You can start writing your note
```

After update:

```
C:\Users\LENOVO\source\repos\dataproj\Debug\dataproj.exe                    —    □    ✕

N.O.T.E.P.A.D
| ----------------------------------------------------- |
|                    ENTER YOUR CHOICE:                 |
|                                                       |
| 1. Insert Note                 2. Search Note and Print|
| 3. Print NotePad               4. Update Note         |
| 5. Delete Note                 0. To exit             |
| ----------------------------------------------------- |
-> 3
-------------------------------------------------------
ID: 22
Time of Insertion: Thu Jan  7 16:03:38 2021

Note:
my first note entry in the notepad :p  and now i have updated it
-------------------------------------------------------
ID: 44
Time of Insertion: Thu Jan  7 15:57:06 2021
Note:
this is my 2nd entry in the notepad
-------------------------------------------------------
```

- **Delete**
  -deletes any of the existing notes by giving the ID if the note to be deleted

- **Display**
  -the whole notepad
  -any single note by search & display, giving the ID of the note to be printed
  -you can display your note in any color you want