Optional Features

# Login & Sign Up

Extra features I have included in this is an account system. So the user is able to create an account and login with it. When the program is first opened you are greeted with a login screen with this you can login with an existing account or if you don’t have one you can create a new one by clicking the sign up button a registering a new account which you can login with.

All this data is either written to or read from a text file and is then stored in arrays to be displayed and or modified for the user. After you have logged into the game it will then display your username in the game window menu bar. When clicking this it will then display a drop down of options allowing you to change the setting of your account and or sign out of the game and be returned to the login screen.

Details for login are stored in the text files following the order:

username e.g. "Jon"

password e.g. "12345"

Strict validation has been put in place here to ensure that you cannot create duplicate username accounts or input blank data e.g. trying to sign up without a username.

# High Scores

Another extra feature I have include is a high scores table, once a user has login into a game and starts playing it will record their gameplay time in the background and when the game has been lost it will attach their username to a time score which is displayed in the high scores GUI. Their score is only updated if their new game time surpasses their old one. Much like the login this data is also saved to and read from a text file to be displayed. A bubble sort algorithm is also used to sort the high scores read from the text file into ascending order to be displayed correctly on the screen. The user also has the option in the drop down for the high scores to then clear all the scores in the high scores list.

# Timer

The game also makes use of a timer which is displayed in real time in the menu bar. The timer only starts when a user interacts with the grid so either by stepping on or marking a tile and the timer will keep incrementing by 1 each second until the game is either won or lost this allows the user to see how much time has passed when they have started the game. This is also used to log to duration of a game to use for the high scores.

# Settings

I have also add a setting GUI screen which can be selected from the drop down under your username where the user can also update their username and or password to something new if they desire. Doing this will also update their highs score if they have one to their new name so their high score data is still maintained. Similar validation has been applied here as the login/sign up where you cannot change your name to another name that already exists.

## Style

Finally I have also made use of graphical images, using a flag for marking an image and mines for when you step on a mine. I have also simulated the neighbours’ colour scheme numbers to match the real game as they are revealed and displayed on screen so a 1 will be blue and a 7 would be black etc.