

# CS 101 PROJECT

## MINESWEEPER

Submitted To: -

Submitted By:-

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# ACKNOWLEDGEMENT

In the present scenario, where the world is taking breath at a high pace, computers have now become an integral part of our life. We are given with an excellent opportunity to learn computers by our institute under the guidance of one of the best professor of Computer Science in India [Dr.D.B.Phatak, Dr. Supratik Chakraborty](#). Lessons by sir during the classes proved to be of great help .We learned great qualities like Professionalism, Team work, Self Assessment, etc. which are sure to play an important role in our life. Last but not the least we will also like to thank our very helping TA [Uday Barla](#) who was there always to help us in any difficulty and to clear our doubts. Overall it was a great journey and again a big thanks to our professor.

# INTRODUCTION

MINESWEEPER is a mind game. The object of the game is to clear an abstract minefield without detonating a mine.

Minesweeper cannot always be solved with 100% certainty, and may require the occasional use of probability to flag the square most likely to have a mine. In other words, one must sometimes guess to solve a minesweeper puzzle.

# STATUS OF COMPLETION

The Project (Level 1 & 2) has been completed successfully. All members from our team participated well. Minesweeper is working perfectly without graphics.

# Project Overview

Our Team (Lab Batch 06) was working all together. We all attended all the meets. We all had done the work as per assigned by our group leader (Laksh Agarwal).

The work assigned to the Team Members is:-

Laksh Agarwal :- Decided all the meets, decided what work should be given to whom, fabricated the whole project, writes the major part of the program (Knows small amount of programming earlier).

Kumar Spandan Sardar :- Attended all the meets, typed the user manual, helped in writing of the program, Best Typer among us (Beginner at programming).

Amritesh Aryan :- Attended all the meets, typed the SRS file, helped in writing of program, Googling for understanding the SRS file (Beginner at programming).

# RULES & BASICS

The objective is to find the empty squares in the minefield while avoiding the mines. When you find all the squares without detonating a single mine, you win the game. The faster you clear the board, the better your score.

## The Minesweeper Board

Minesweeper has four standard boards to choose from, each progressively more difficult.

<b>Beginner</b>	Level	:	06*06	Tiles,	06	Mines
<b>Amateur</b>	Level	:	10*10	Tiles,	10	Mines
<b>Professional</b>	Level	:	15*15	Tiles,	15	Mines

# How To Play

The rule in minesweeper is simple:

Uncover a mine, and game ends.

Uncover a empty square, and u keep playing.

Uncover a number, and it tells you how many mines lay hidden in the eight surrounding squares-Information you use to deduce which nearby squares are safe to click.

You win if you correctly flag all the boxes which contain mines.

## Hints & Tips

Mark the mines. If you suspect a square conceals a mine, click on it when flag mode is on. This puts a flag on the square.

Study the patterns. If three square in a row display 2-3-2, then you know three mines are probably lined up beside that row. If a square says 8, every surrounding square is mined.

Explore the unexplored. Not sure where to click next?

Try clearing some unexplored territory. You're better off clicking in the middle of unmarked squares than in an area you suspect is mined.

# FEATURES

Some of the features that is available to the user:

Option to choose **THREE DIFFICULTY LEVELS**.

The user will get randomly mined maps every time.

In case of losing, Dialog box will show TWO options:  
New Game, Exit Minesweeper.

We are showing the Minesweeper Board at last, when the User get lost. (Board is showing the place of mines.)



# FUNCTIONS USED

The following are the various code intercepts written by our Team Members for various input & output operations. This includes only the main functions that are used. Minor functions have been avoided & details about those functions have been given as comment lines in the program.

## Different Libraries Used

```
#include <iostream>
#include <stdio.h>
#include <stdlib.h>
#include <ctype.h>
#include <time.h>
```

We have used Global Variables to make our project less complicated.

# Different Functions Made

```
void build_board_b();  
void build_board_a();  
void build_board_p();
```

```
void build_gboard_b();  
void build_gboard_a();  
void build_gboard_p();
```

```
void create_mines_b();  
void create_mines_a();  
void create_mines_p();
```

```
void print_board_b();  
void print_board_a();  
void print_board_p();
```

```
void print_fullboard_b();  
void print_fullboard_a();  
void print_fullboard_p();
```

\

```
void start_b();  
void start_a();  
void start_p();
```

```
int play_game_b();  
int play_game_a();  
int play_game_p();
```

```
void play_again_b();  
void play_again_a();  
void play_again_p();
```

```
int check_win_game_b();  
int check_win_game_a();  
int check_win_game_p();
```

```
void check_for_mine_b(int, int);  
void check_for_mine_a(int, int);  
void check_for_mine_p(int, int);
```

```
int check_for_nearby_mines_b(int, int);  
int check_for_nearby_mines_a(int, int);  
int check_for_nearby_mines_p(int, int);
```

# ScreenShots

These ScreenShots are of MINESWEEPER offered by:

**CODEBLOCKS**

Before Playing The Game :-

```
-----WELCOME TO MINESWEEPER!-----  
  
-----Instructions-----  
1. Type coordinates when prompted  
2. If you hit a mine, you die  
3. Do not uncover coordinates you think are mines  
  
-----GOOD LUCK-----  
  
If you are ready to play Minesweeper.....      Just press ENTER. :>
```

## Showing Of Levels :-

```
Please Choose Your Level you want to play from the list below.  
< Please Enter The No. Preeceding Your Choice >  
  
1. Beginner Level  
2. Amateur Level  
3. Professional Level  
4. Exit Minesweeper
```

## Beginner Level :-

```
Beginner Level Starting... Creating Beginner Game Board...  
Ready...  
Set...  
PLAY MINESWEEPER !!!!!  
  
1 2 3 4 5 6  
  
o o o o o o 1  
o o o o o o 2  
o o o o o o 3  
o o o o o o 4  
o o o o o o 5  
o o o o o o 6  
  
Make a selection <ie. row [ENTER] col>:  
Row-->
```

## Amateur Level :-

```
Amateur Level Starting...Creating game board....
```

```
Ready..set..
```

```
PLAY!
```

```
1 2 3 4 5 6 7 8 9 10
```

```
0 0 0 0 0 0 0 0 0 0 1
0 0 0 0 0 0 0 0 0 0 2
0 0 0 0 0 0 0 0 0 0 3
0 0 0 0 0 0 0 0 0 0 4
0 0 0 0 0 0 0 0 0 0 5
0 0 0 0 0 0 0 0 0 0 6
0 0 0 0 0 0 0 0 0 0 7
0 0 0 0 0 0 0 0 0 0 8
0 0 0 0 0 0 0 0 0 0 9
0 0 0 0 0 0 0 0 0 0 10
```

```
Make a selection <ie. row [ENTER] col>:
```

```
Row-->
```

## Professional Level :-

```
Professional Level Starting...Creating game board....
```

```
Ready..set..
```

```
PLAY!
```

```
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
```

```
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 2
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 3
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 4
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 5
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 6
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 7
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 8
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 9
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 10
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 11
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 12
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 13
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 14
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 15
```

```
Make a selection <ie. row [ENTER] col>:
```

```
Row-->
```

## Playing The Game :-

```
1 2 3 4 5 6
0 0 1 0 0 0 1
0 0 0 0 0 0 2
0 0 0 0 0 0 3
2 0 0 1 0 0 4
0 0 0 0 0 0 5
0 0 0 0 0 0 6

Make a selection <ie. row [ENTER] col>:
Row-->
```

## After Losing The Game :-

```
1 2 3 4 5 6
0 0 0 * 0 0 1
0 0 0 0 0 * 2
0 0 0 0 * 0 3
0 0 0 0 0 0 4
* * 0 0 0 0 5
0 0 * 0 0 0 6

Would you like to play again? <y/n> -->
```





