**Plan:**

Description of Task (Analysis)

Success criteria

Algorithm

Validation

Variables

Test

**The Task - Description of Task (Analysis):**

Create a program that generates a game of mind sweeper. The program will generate 3 random mines somewhere in a 5 x 5 grid. The use must enter an X, Y coordinate, and then the program must check for a mine at the coordinates entered by the user. After each guess the grid just be drawn again showing the positions the user has already entered, the program should also record the number of guess taken, when all 3 mines are found the game will end.

**Success criteria:**

* Generate 3 random locations for mines
* Validate inputs – only integers 1-5 excepted
* Update scores accurately
* Draw grid accurately
* Update guesses accurately
* Print and update grid accurately
* Draw grid repeatedly
* Player has to enter coordinates
* Check if position is a mine
* Check if 3 mines found

**Algorithm:**

1. Define grid
2. Generate list of mine locations
3. Draw grid
4. Ask user to enter coordinates
5. Check if mine found
6. Update grid
7. Update guesses
8. Update mines found
9. Repeat 3-9 until minesFound = 3
10. Print message

Pseudo code:

**Draw the grid repeatedly:**

**Define grid**

Grid=[[~,~,~,~,~],[~,~,~,~,~],[~,~,~,~,~],[~,~,~,~,~],[~,~,~,~,~]]

**Draw grid**

Procedure Draw grid (table)

For row in table:

For item in row:

Print()

Print()

**Randomly place 3 mines:**

Place Mines:

Mines =[]

For I in range(3):

X = random integer(0,4)

Y = random integer(0,4)

Position = [Y, X]

Mines.append(position)

If position in mines:

X = random intiger(0,4)

**Player has to enter coordinates -** Validation**:**

coordinates = True

While coordinates == True

Try:

X = integer input (“Enter a X coordinate”)

Y = integer input (“Enter a Y coordinate”)

If X in range(1,6) and Y in range(1,6):

Coordinates = False

Else:

Print(“Coordinates are not valid”)

Except:

Print(“That is not a valid coordinate”)

**Check if position is a mine and Print message:**

If X in Mines and Y in Mines:

Grid.append[X][Y] = “M”

Print (“You have found a mine”)

MineFound = mineFound + 1

Else:

Grid.append[X][Y] = “X”

**Update the grid and print:**

grid (table)

**Update count of guesses:**

Count = count + 1

**Check if 3 mines found:**

If mineFound == 3:

Variables:

|  |  |
| --- | --- |
| Variable name | Variable type |
| Mines | list |
| count | Integer |
| minesFound | Integer |
| grid | list |
| X | integer |
| Y | integer |
| Coordinates | Boolean |