CSE 331 Project 1 Report

- I made the Bomberman game according to version 2 specified in the project file.

Procedures:

- **Main Procedure (Main):**
  The Main procedure tells you to enter the row and column numbers and then calls the createArray to create the first game board. You can then use the printArray procedure to show the initial board. The Bomberman game starts using the bomberMan procedure and the program prints out the final game board with the current status of the game, giving you a full picture of your Bomberman gaming session.

- **Print Array Procedure (printArray):**
  printArray is a procedure that prints out the elements in a 2D array on the console. It uses nested loops to go through the array's rows and columns, and it iterates through the dimensions of the array. It also uses system calls to print characters and lines, so you can see the elements of the array on the console in a neat and readable way. This approach makes it easy to manage the output process by going through the structure of the array and using system calls for good character and line management.

- **Create Array Procedure (createArray):**
  The "createArray" procedure dynamically allocates memory on the heap using the sbrk system call and initializes a 2D array with characters provided by the user. It accommodates newline characters to allow flexible input. The procedure then returns the base address of the created array, enabling efficient memory management and user-defined character array configuration.

- **Bomberman Procedure (bomberMan):**
  In bomberMan, the Bomberman procedure is called createBoard. Every time there's an explosion, you need to change the game board. You can do this by using a temporary array that captures and stores the middle states of the board while the explosions are happening, so you can keep the game state up to date.

- **Create Board Procedure (createBoard):**
  The 'createBoard' procedure dynamically allocates memory for a new 2D array using 'sbrk' and initializes it with '0' characters. Subsequently, it iterates through each element of the original array, updating neighboring elements according to specified conditions. The procedure concludes by returning the base address of the newly created array.

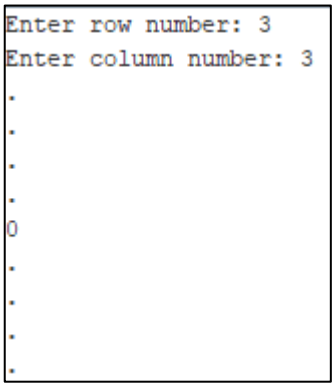
Flow of program

- The program begins by prompting the user for the dimensions of the game board.
- The initial game board is created using the **createArray** procedure by user inputs..
- The initial board is printed to the console using **printArray** .
- The Bomberman game is initiated using the **bomberMan** procedure.
- Bombs explode in three phases, each updating the game board.
- The final game board is printed using **printArray**.
- The program ends with an exit syscall.

Input Style

- Inputs can be two types. Firstly, you can add char by char and secondly you can add row by row as string. You don't need to choose, program can handle by itself.

Char by char



Row by row