Langdon’s Ant

**Program Flow**

Present main menu to user

If user selects 2, quit immediately.

If user selects 1, proceed to series of prompts regarding board size

(If user selects anything other than 1 or 2, reprompt user)

Prompt for number of rows (between 1 and ???)

Prompt for number of columns (between 1 and ???)

Prompt for number of steps (between 1 and ????)

Prompt for starting row (between 1 and user input row)

Prompt for starting column (between 1 and user input row)

(Prompt for stating direction?)

Instantiate the board

Place ant in starting location

Run ant movement algorithm one step

If ant is against boundary, rotate clockwise and continue step

Print the board

Repeat x user entered number of steps

Prompt user to play again or quit

**Ant movement algorithm**

Test Plan

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Test case** | **Input Values** | **Affected functions** | **Expected outcomes** | **Observed outcomes** |
| Negative input | Input < 0 | main()  gameboard setup functions | Reprompt user for positive input |  |
| Input is 0 | Input == 0 | main()  gameboard setup functions | Reprompt user for positive input |  |
| Input is too high | Steps > 30000  Rows/columns > 250 | main()  gameboard setup functions | Reprompt user for smaller input |  |
| Ant hits edge |  | Ant movement | Skip step, rotate clockwise, and attempt to move forward (if board is 1x1, infinite loop?) |  |
|  |  |  |  |  |