# Development of U.C.s

**Use Case number: 1**

Use case name: Edit Spreadsheet

Actors: users

Preconditions: Spreadsheet created

Postconditions: Spreadsheet values correctly updated

Basic flow

1. The system displays spreadsheet menu in the console and requests the user to select an option
2. User selects edit option in the spreadsheet menu and indicates the cell to modify and the content to introduce.
3. The introduced cell is a valid cell
4. The system identifies a written equation
5. The system solves the equation
6. The system assigns the result to the value of the correspondent cell of the spreadsheet
7. The system recomputes all cell values which depend on the value of the edited cell
8. The system assigns the input string to the content of the correspondent cell

Extensions

2.a. User inputs a valid option which is not the “edit spreadsheet” one

1. The system ends the Use Case

2.b User inputs a non-valid option

1. Notify error to user
2. Return to step 1 of the basic flow

3.1. The user introduces a non-valid cell through console

1. Notify error to user
2. Return to step 1 of the basic flow

3.2. The user introduces a correct cell but out of bounds of the current cells

1. The system extends the current Spreadsheet
2. Go to the following step of the basic flow

4.1. The system does not identify an equation

1. The system sets the value of the correspondent cell to null
2. Go to step 8 of the basic flow

5.a. The system is not able to solve the equation

1. Notify error to user
2. Return to step 1 of the basic flow

Subfunction use Case number: 1

Use Case name: Solve equation

Preconditions:

- Equation identified

Postcondition:

- returned int value with the result

Basic flow:

1. Identify linked cells in the equation
2. Replace linked cells by its value
3. Identify formulas in the equation
4. Compute formulas
5. Change notation from infix to reverse polish
6. Evaluate the reverse polish notation to compute the final result

Extensions

2. a. There are no cells to replace

    1. Skip to next step of the basic flow

4. a. There are no formulas to replace

    1. Skip to next step of the basic flow

6. a. Syntax error in the shunting yard algorithm

    1. Notify error to user

    2. Return to step 1 of the basic flow

**Use Case number: 2**

Use case name: Create Spreadsheet

Actors: users

Preconditions: main menu correctly initialized; Spreadsheet menu correctly initialized

Postconditions: Enter the Spreadsheet Menu

Basic flow

1. The system displays the spreadsheet menu in the console and requests the user to select an option
2. User selects create option in the Spreadsheet menu and indicates the name of the spreadsheet and the path where to save the spreadsheet.
3. The system creates an initial grid of 3x3
4. The system creates a spreadsheet
5. Set the created spreadsheet as the current spreadsheet
6. Add the created spreadsheet to the loaded spreadsheets

Extensions

2.a. User inputs a valid option which is not the “create spreadsheet” one

1. The system ends the Use Case

2.b. The user inputs a non-valid menu option

1. Notify error to the user

2. Return to step 1 of the basic flow

2.c. The introduced name has invalid characters

1. Notify error to user

2. Return to step 1 of the basic flow.

2.d. The user did not introduce a name for the spreadsheet

1. Notify error to user

2. Return to step 1 of the basic flow.

2.e. The user did not introduce a path where to save the spreadsheets

1. The default folder path will be used instead

2.f. The introduced path is not valid

1. Notify error to the user

2. Return to step 1 of the basic flow

**Use Case number: 3**

Use case name: Save Spreadsheet

Actors: users

Preconditions: Spreadsheet correctly initialized

Postconditions: File containing the content of the spreadsheet created

Basic flow

1. The system displays the spreadsheet menu in the console and requests the user to select an option
2. User selects save option in the Spreadsheet menu
3. The system gets the content from the grid of the current spreadsheet
4. The System saves the content to a File with the S2V format.

Extensions

4.a. The system is not able to save the Spreadsheet

1. Notify error to the user
2. Return to step 1 of the basic flow