# Lab sessions group 1. Flow of SpreadSheet

**Use case number: 1**

**Use case name:** Introduce an alphanumeric character

**Use case goal:** Allows the user to introduce data to a cell.

**Actors:** User

**Preconditions:**

- User using the spreadsheet.

- System properly initialized (the spreadsheet is correctly fulfilled by previous information).

- The spreadsheet has at least one row and one column to introduce data (an empty cell).

**Postconditions:**

* The cell is fulfilled correctly.
* The system saves the data.

**Basic flow:**

1. System display the actual stored data.
2. User selects a cell.
3. User introduce alphanumerical character.
4. The system validates that is an alphanumerical character.
5. The system stores the data.

**EXTENSIONS (Alternative Flow)**

1.a. User closes the spreadsheet.

1. System ends use case.

2.a. User has not select any cell.

1. Return to step 2.

2.b. User closes the spreadsheet.

1. System ends use case.

3.a. User closes the spreadsheet.

1. System ends use case.

4.a. System checks that is not an alphanumerical character.

1. System notifies to user.

2. Return to step 3.

4.b. User closes the spreadsheet.

1. System ends use case.

**Use case number: 2**

**Use case name:** Modify the data of a cell

**Use case goal:** Allows the user to change the value of a cell

**Actors:** User

**Preconditions:**

- User using the spreadsheet.

- System properly initialized (the spreadsheet is correctly fulfilled by previous information).

- The spreadsheet has at least one row and one column to introduce data and it was fulfilled in the past.

**Postconditions:**

* The cell value is changed and fulfilled correctly.
* The system saves the data.

**Basic flow:**

1. System display the actual stored data.
2. User selects a cell (a non-empty cell).
3. User introduce data (formula, alphanumerical,…).
4. The system stores the data.

**EXTENSIONS (Alternative Flow)**

1.a. User closes the spreadsheet.

1. System ends use case.

2.a. User has select an empty cell.

1. Return to step 2.

2.b. User closes the spreadsheet.

1. System ends use case.

3.a. User closes the spreadsheet.

1. System ends use case.

4.a. System checks that is valid data.

1. System notifies to user.

2. Return to step 3.

4.b. User closes the spreadsheet.

1. System ends use case.

**Use case number: 3**

**Use case name:** Add a row

**Use case goal:** Allows the user to create a new row

**Actors:** User

**Preconditions:**

- User using the spreadsheet.

- System properly initialized (the spreadsheet is correctly fulfilled by previous information).

- The spreadsheet has at least one row and one column created.

- The spreadsheet did not arrive the limit of possible rows.

**Postconditions:**

* The row is created.
* The system saves the data.

**Basic flow:**

1. System display the actual stored data.
2. User inserts a new row.
3. The system stores the data.

**EXTENSIONS (Alternative Flow)**

1.a. User closes the spreadsheet.

1. System ends use case.

2.a. User closes the spreadsheet.

1. System ends use case.

3.a. User closes the spreadsheet.

1. System ends use case.

**Use case number: 4**

**Use case name:** Perform a basic operation

**Use case goal:** Allows the user to calculate a basic operation

**Actors:** User

**Preconditions:**

- User using the spreadsheet.

- System properly initialized.

- The spreadsheet has at least one row and one column created.

**Postconditions:**

* The basic operation is calculated.
* The system saves the data.

**Basic flow:**

1. System display the actual stored data.
2. User selects a cell.
3. User introduces an =.
4. User introduces a numeric character or a cell reference.
5. User introduces a symbol operation (+,-,/,\*)
6. User introduces a numeric character or a cell reference.
7. Repeat 5 to 6 until we introduce the operation to do.
8. User clicks Enter
9. The system calculates the data.
10. The system stores the data.

**EXTENSIONS (Alternative Flow)**

1.a. User closes the spreadsheet.

1. System ends use case.

2.a. User closes the spreadsheet.

1. System ends use case.

3.a. User introduces another value.

1. System will not detect the operation.

2. Notify to the user that the operation was identify as a text.

3.b. User closes the spreadsheet.

1. System ends use case.

4.a. User introduces text.

1. System will detect an error.

2. Notify to the user that the operation was identify as a text.

4.b. User introduces an invalid cell reference (does not exist).

1. System will detect an error.

2. Notify to the user that the operation was identify as a text.

4.c. User introduces an invalid cell reference (the cell is empty).

1. System will detect an error.

2. Notify to the user that the operation was identify as a text.

4.d. User closes the spreadsheet.

1. System ends use case.

5.a. User introduces an invalid symbol.

1. System will detect an error.

2. Notify to the user that the operation was identify as a text.

5.b. User closes the spreadsheet.

1. System ends use case.

6.a. User introduces text.

1. System will detect an error.

2. Notify to the user that the operation was identify as a text.

6.b. User introduces an invalid cell reference.

1. System will detect an error.

2. Notify to the user that the operation was identify as a text.

6.c. User closes the spreadsheet.

1. System ends use case.

8.a. User not click enter.

1. The basic operation is not executed.

9.a. User closes the spreadsheet.

1. System ends use case.

**Use case number: 5**

**Use case name:** Perform a function (SUM, MIN, MAX AND PROMEDIO)

**Use case goal:** Allows the user to calculate a function (SUM, MIN, MAX AND PROMEDIO)

**Actors:** User

**Preconditions:**

- User using the spreadsheet.

- System properly initialized.

- The spreadsheet has at least one row and one column created.

**Postconditions:**

* The function is calculated.
* The system saves the data.

**Basic flow:**

1. System display the actual stored data.
2. User selects a cell.
3. User introduces an =.
4. User introduces “SUMA”, “MIN”, “MAX”, “PROMEDIO” following by “(“.
5. User introduces a numeric character or a cell reference.
6. User introduces a ; .
7. Repeat 5 to 6 until we introduce the operation to do.
8. User introduces a “)”.
9. User clicks Enter.
10. The system calculates the data.
11. The system stores the data.

**EXTENSIONS (Alternative Flow)**

1.a. User closes the spreadsheet.

1. System ends use case.

2.a. User closes the spreadsheet.

1. System ends use case.

3.a. User introduces another value.

1. System will not detect the operation.

2. Notify to the user that the operation was identify as a text.

3.b. User closes the spreadsheet.

1. System ends use case.

4.a. User introduces another value that was not expected.

1. System will detect an error.

2. Notify to the user that the operation was identify as a text.

4.b. User closes the spreadsheet.

1. System ends use case.

5.a. User introduces text.

1. System will detect an error.

2. Notify to the user that the operation was identify as a text.

5.b. User introduces an invalid cell reference (does not exist).

1. System will detect an error.

2. Notify to the user that the operation was identify as a text.

5.c. User introduces an invalid cell reference (the cell is empty).

1. System will detect an error.

2. Notify to the user that the operation was identify as a text.

5.d. User closes the spreadsheet.

1. System ends use case.

6.a. User introduces another value that was not expected.

1. System will detect an error.

2. Notify to the user that the operation was identify as a text.

6.b. User closes the spreadsheet.

1. System ends use case.

8.a. User introduces another value that was not expected.

1. System will detect an error.

2. Notify to the user that the operation was identify as a text.

8.b. User closes the spreadsheet.

1. System ends use case.

9.a. User not click enter.

1. The basic operation is not executed.

10.a. User closes the spreadsheet.

1. System ends use case.