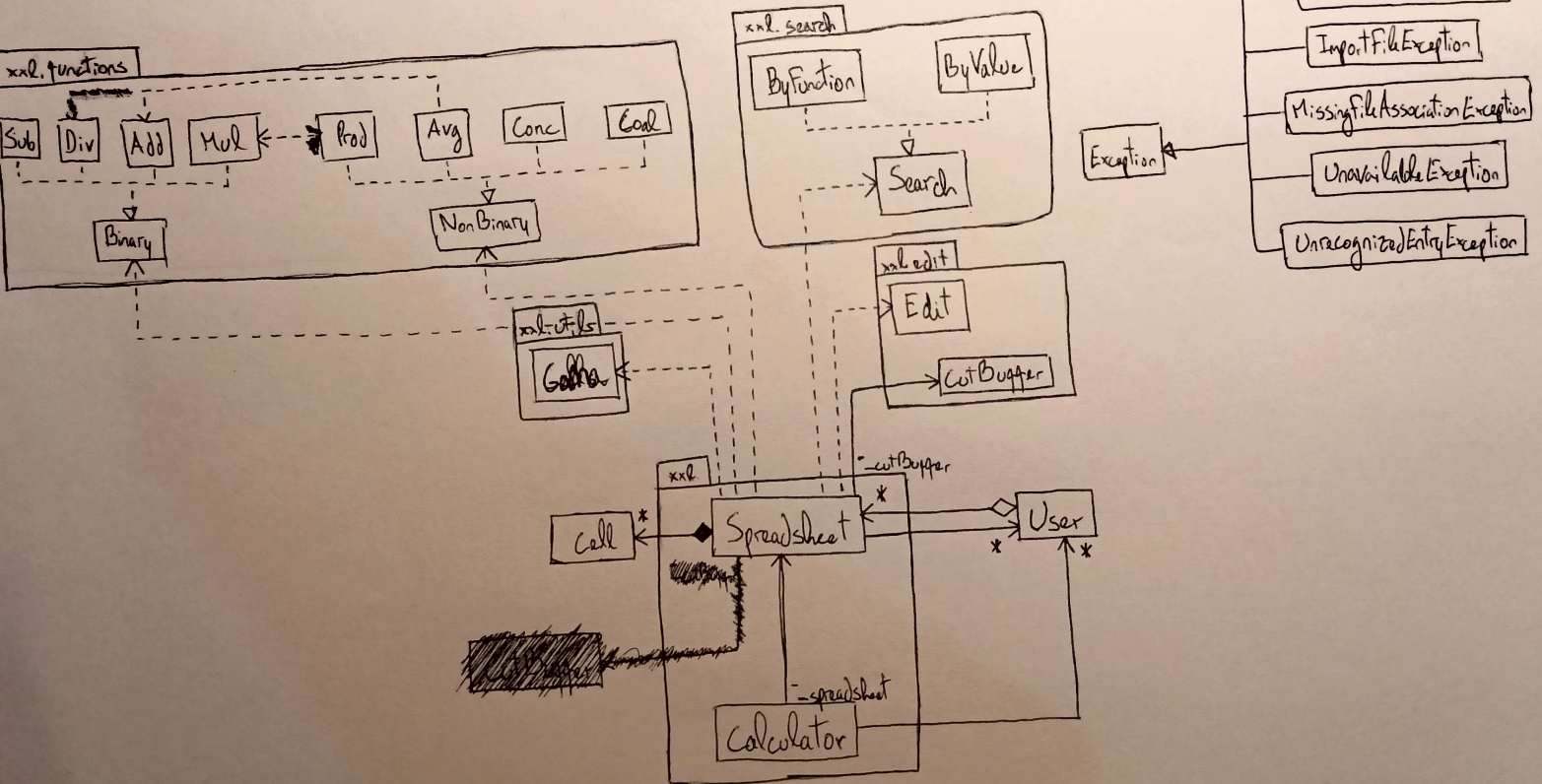


Some getters and setters have been omitted.
 class serial numbers have been also omitted.
 Exceptions have been omitted from the more
 detailed pages and their representation does not
 show in detail the relations with the classes.



Declaro por minha honra que este diagrama foi realizado apenas pelos elementos do grupo do projeto. Francineia Almeida

Declaro por minha honra que este diagrama foi realizado apenas pelos elementos que constituem o grupo do projeto. José Prazeres

Spreadsheet

```
- _name: String = ""  
- _nLines: int  
- _nColumns: int  
- _contents: List<List<Cell>>  
- _cutBuffer: CutBuffer  
  
+ insertContents(rangeSpecification: String, contentSpecification: String): void  
+ show(gama: String): void  
+ insert(values: String, gama: String): void  
+ delete(gama: String): void  
+ copy(gama: String): void  
+ cut(gama: String): void  
+ paste(gama: String): void  
+ getCutBuffer(): List<String>  
+ searchV(parameter: String): List<String>  
+ searchF(parameter: String): List<String>  
+ add(value1: String, value2: String): int  
+ sub(value1: String, value2: String): int  
+ mul(value1: String, value2: String): int  
+ div(value1: String, value2: String): int  
+ avg(gama: String): String  
+ prod(gama: String): String  
+ conc(gama: String): String  
+ coal(gama: String): String
```

Calculator

```
- _spreadsheet: Spreadsheet = null  
- _allUsers: Map<User>
```

```
+ save(): void  
+ saveAs(filename: String): void  
+ load(filename: String): void  
+ importFile(filename: String): void
```


Gama

- + getFirstCell(gama: String): Cell
- + getLastCell(gama: String): Cell
- + getCells(gama: String): List<Cell>
- + getCellsContent(gama: String): List<Cell>
- + getCellsValue(gama: String): List<Cell>

Edit

- + show(gama: String): void
- + insert(values: String, gama: String): void
- + delete(gama: String): void

CutBuffer

- content: List<String>
- isline: boolean
- + copy(gama: String): void
- + cut(gama: String): void
- + paste(gama: String): void
- + getCutBuffer(): List<String>

<< interface >>

Search

- + search(parameter: String): List<String>

By Function

- + search(parameter: String): List<String>

By Value

- + search(parameter: String): List<String>

<< interface >>

Binary

- + execute(value1: String, value2: String): int

Add

- + execute(value1: String, value2: String): int

Sub

- + execute(value1: String, value2: String): int

User

- name: String = "root"
- spreadsheets: Map<Spreadsheet>
- + getSpreadsheet(name: String): Spreadsheet

Mul

- + execute(value1: String, value2: String): int

Div

- + execute(value1: String, value2: String): int

<< interface >>

Non Binary

- + execute(gama: String): String

Avg

- + execute(gama: String): String

Prod

- + execute(gama: String): String

Conc

- + execute(gama: String): String

Coat

- + execute(gama: String): String

Cell

- line: int
- column: int
- content: String = ""
- + getCellFrom String(cell: String): Cell
- + getStringFromCell(cell: Cell): String
- + getCellContent(cell: Cell): String
- + getCellValue(cell: Cell): String
- + deleteCell(): void