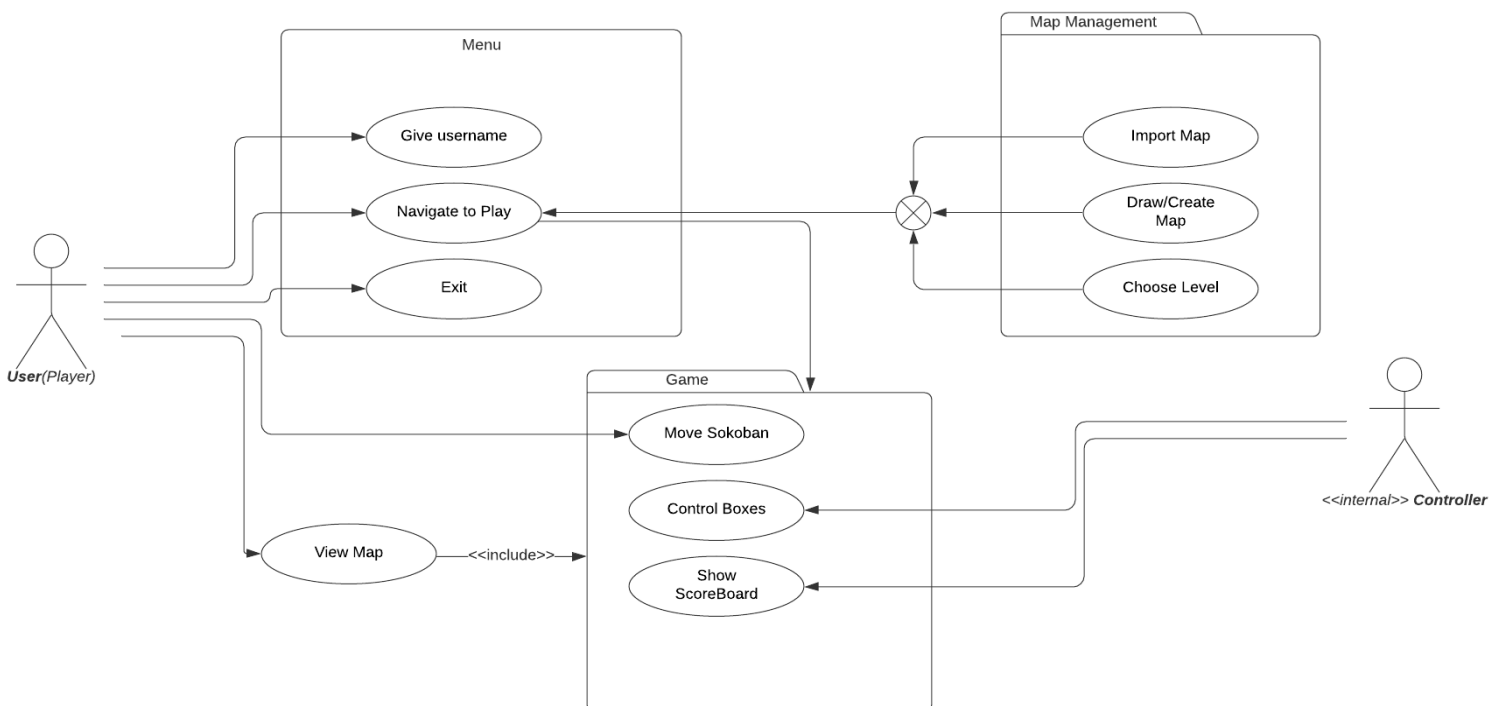


# Sokoban

## Use Case Diagram:



## Use Case description:

Title	Give username
Description	Player gives his/her username to play
Actors	Player
Main success scenario	Player types or enter his input
Alternative scenario	

Title	Navigate to Play
Description	Player presses play button to continue to another window
Actors	Player
Main success scenario	he gets opportunity to choose, import and draw map

Alternative scenario	
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Title	Import Map
Description	The player opens the file system section and imports game from there.
Actors	Player
Main success scenario	The player opens the file system section and imports game from there.
Alternative scenario	

Title	Draw Map
Description	The player draws the map
Actors	Player
Main success scenario	The player draws the map by the tools on the window, and store and use it for the further game maps
Alternative scenario	

Title	Choose level
Description	The player chooses level.
Actors	Player
Main success scenario	The player chooses particular level of game through the maps given.
Alternative scenario	

Title	Move Sokoban
Description	The player moves character of the game through the map
Actors	Player
Main success scenario	The player moves the Sokoban left, right, up or down to place the boxes
Alternative scenario	When the Sokoban moves, its number of steps is counted.
Alternative scenario	If the Sokoban places all the boxes on the map to right place, it wins.
Alternative scenario	If the Sokoban places boxes to wrong place which causes dead-lock, it dies and game ends

Title	Control Boxes
Description	State of boxes is changed
Actors	Controller
Main success scenario	Controller changes the state of boxes according to how the Sokoban push them and place them on the right place.
Alternative scenario	If the Sokoban pushes the box and its next moving direction is clear (not wall), Controller changes its place.

Alternative scenario	If the Sokoban places box on the map to right place, the Controller changes the color of box to darker.
Alternative scenario	If the Sokoban places boxes to wrong place which causes dead-lock, it dies and game ends

Title	Show Scoreboard
Description	Controller shows the scoreboard of game.
Actors	Controller
Main success scenario	Controller shows the scoreboard of game to the window according to the accomplishment records of current map.
Alternative scenario	Accomplishment points is calculated based on the number of steps which Sokoban did to finish the map.

### **Brief Description:**

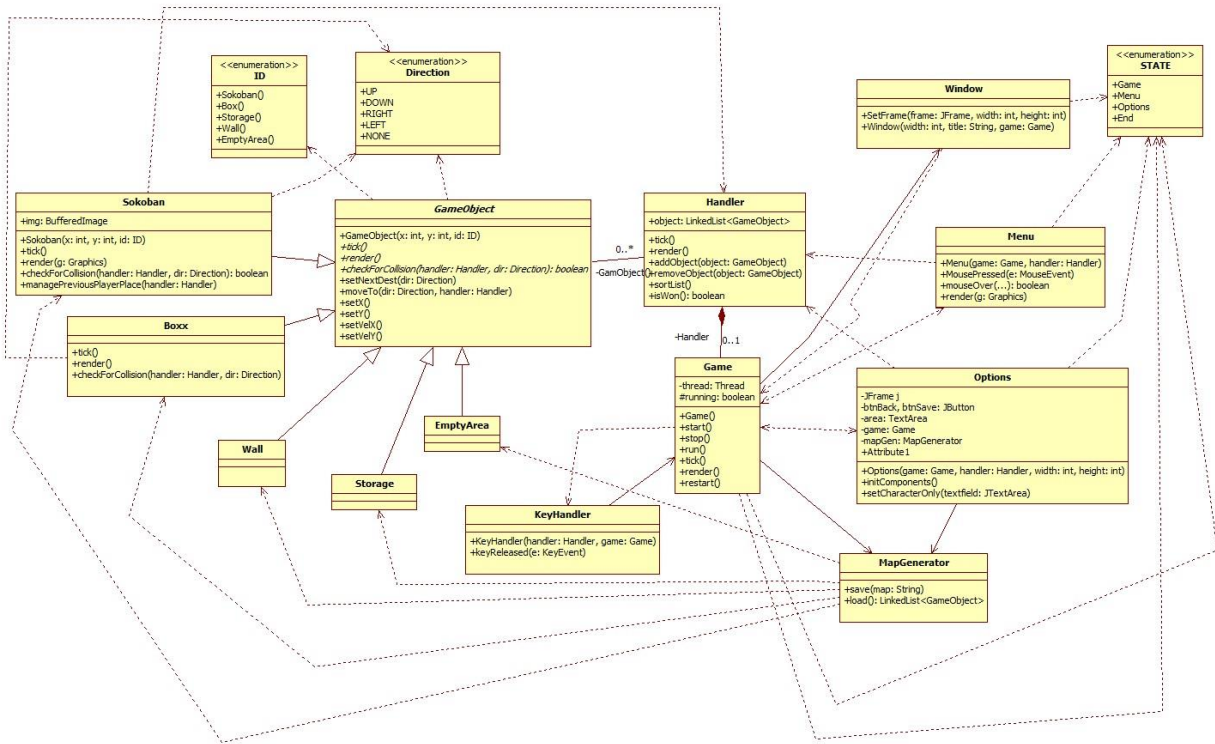
Throughout this semester, I am looking forward to develop a game called Sokoban. It is an old Japanese puzzle game in which the player pushes the boxes around in a warehouse to get them to storage.

As a project for Java Language, I want to develop this game to more advanced and interactive than usual by adding some new features. In other words, as you can see from the use case diagram, my game program has three states - menu, mapping and game. Therefore, user can get opportunity to not just play the game but also interact with game by such creating and importing his or her own map. And I hope it helps this game to be more user-friendly and interactive.

In terms of solution for this task - Sokoban Game, I am looking forward to use:

- Swing-based GUI to make the game have graphics and be interactive, especially by using low-level graphics routines (Graphics class), ranging from JFrame to Canvas.  
This GUI really helps when it comes to drawing map of the game to the screen and implementing the movement of game objects. In addition, Java Thread definitely will be used to manage game loop.
- Java Serialization to work with the file management of the game. In more detail, the maps of the game are stored in text file. Therefore, it helps when it comes to reading from and writing into the file to manage my Mapping state and grant opportunity to user to drawing and importing game map.
- Collections framework widely for the data structures of the program.

## Class Diagram:



## Unit Test Description:

I have tried almost everything to test some methods of classes in my program. However, I kept keep facing this errors and even for simple methods which just returns Boolean.

```

java.lang.NoClassDefFoundError: org.junit.runner.manipulation.Filter
    at java.base/java.lang.Class.forName0(Native Method)
    at java.base/java.lang.Class.forName(Class.java:377)
    at org.eclipse.jdt.internal.junit.runner.RemoteTestRunner.loadTestLoaderClass(RemoteTestRunner.java:381)
    at org.eclipse.jdt.internal.junit.runner.RemoteTestRunner.createRawTestLoader(RemoteTestRunner.java:371)
    at org.eclipse.jdt.internal.junit.runner.RemoteTestRunner.createLoader(RemoteTestRunner.java:366)
    at org.eclipse.jdt.internal.junit.runner.RemoteTestRunner.defaultInit(RemoteTestRunner.java:310)
    at org.eclipse.jdt.internal.junit.runner.RemoteTestRunner.init(RemoteTestRunner.java:225)
    at org.eclipse.jdt.internal.junit.runner.RemoteTestRunner.main(RemoteTestRunner.java:209)
Caused by: java.lang.ClassNotFoundException: org.junit.runner.manipulation.Filter
    at java.base/jdk.internal.loader.BuiltinClassLoader.loadClass(BuiltinClassLoader.java:606)
    at java.base/jdk.internal.loader.ClassLoaders$AppClassLoader.loadClass(ClassLoaders.java:168)
    at java.base/java.lang.ClassLoader.loadClass(ClassLoader.java:522)
    ... 8 more
  
```