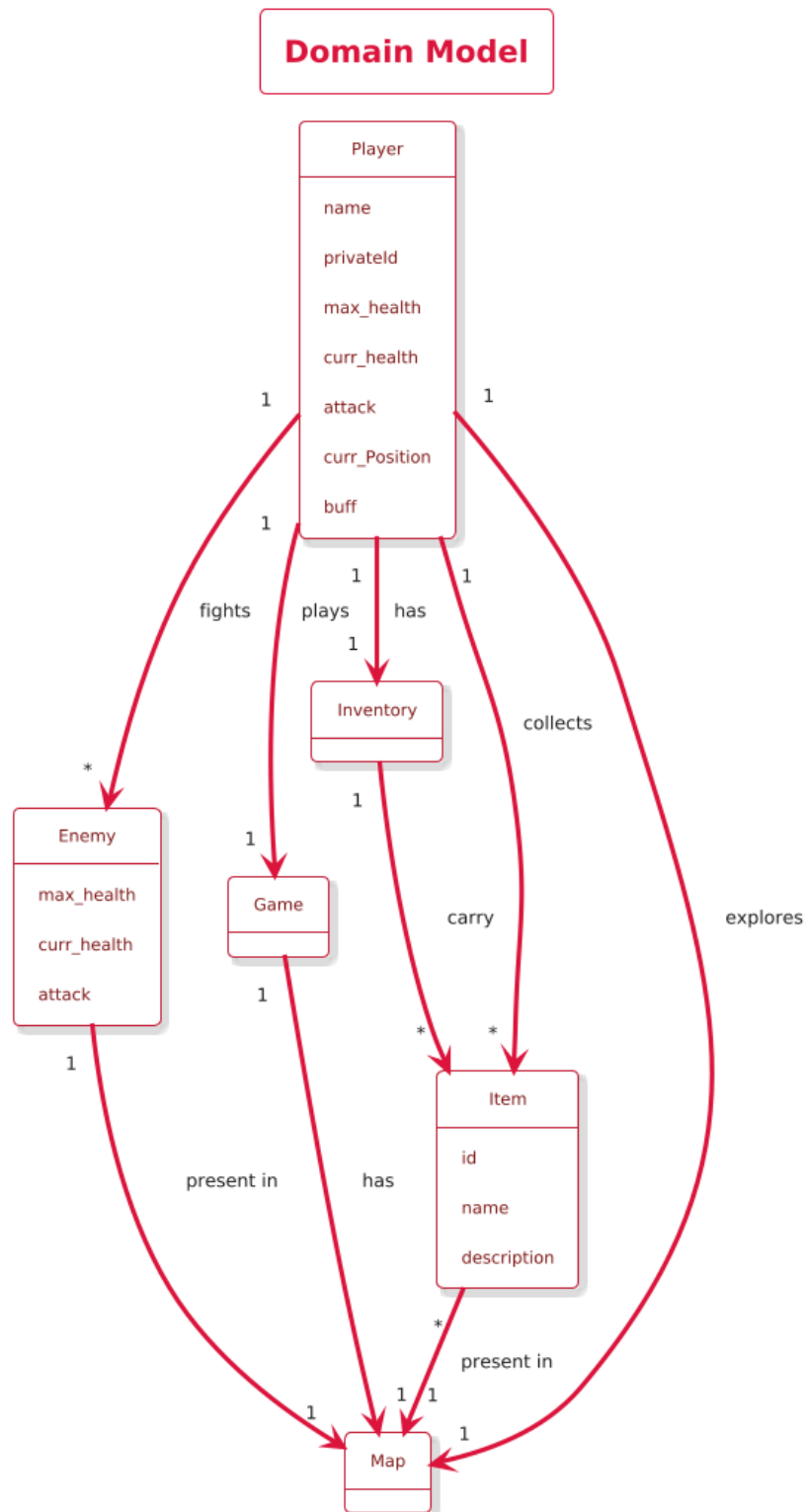# Design Document
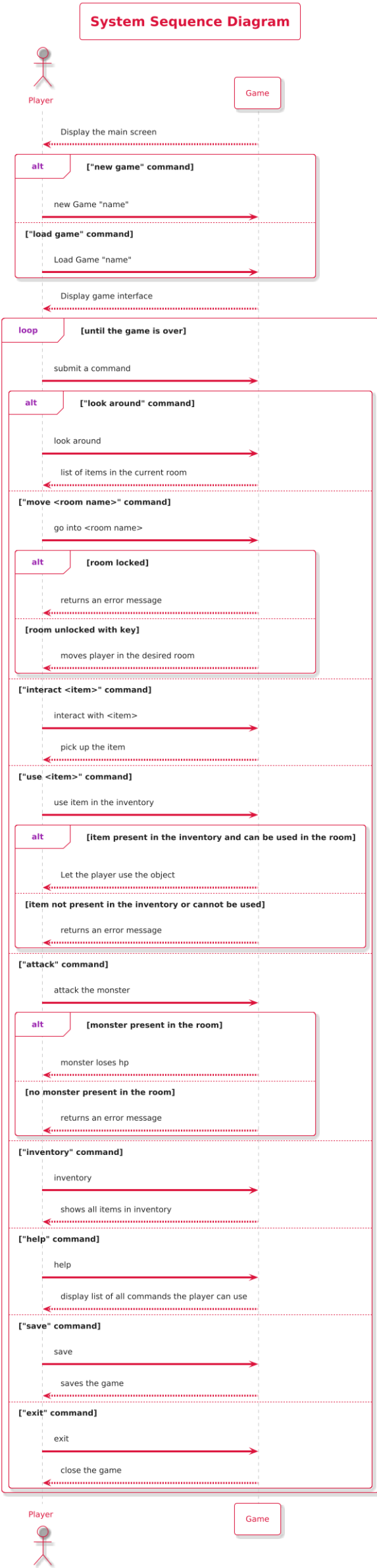
Group 104
Andreea Sfetcu, Pierluigi Ribon, Enoc Ke, Limei Guan
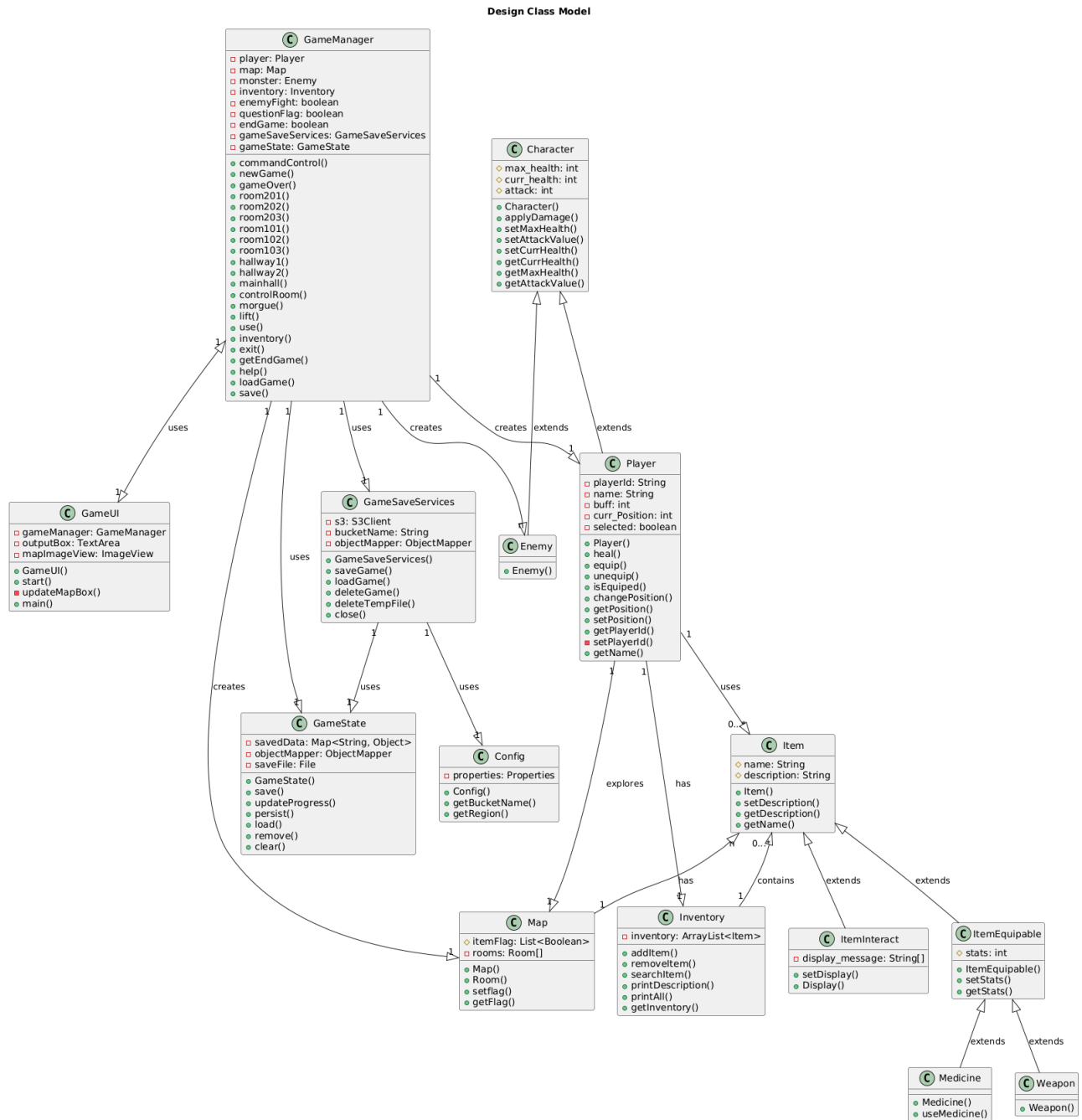
1 Domain Model

2 System Sequence Diagram

System Sequence Diagram

Player

Game

Display the main screen

alt ["new game" command]

new Game "name"

["load game" command]

Load Game "name"

Display game interface

loop [until the game is over]

submit a command

alt ["look around" command]

look around

list of items in the current room

["move <room name>" command]

go into <room name>

alt [room locked]

returns an error message

[room unlocked with key]

moves player in the desired room

["interact <item>" command]

interact with <item>

pick up the item

["use <item>" command]

use item in the inventory

alt [item present in the inventory and can be used in the room]

Let the player use the object

[item not present in the inventory or cannot be used]

returns an error message

["attack" command]

attack the monster

alt [monster present in the room]

monster loses hp

[no monster present in the room]

returns an error message

["inventory" command]

inventory

shows all items in inventory

["help" command]

help

display list of all commands the player can use

["save" command]

save

saves the game

["exit" command]
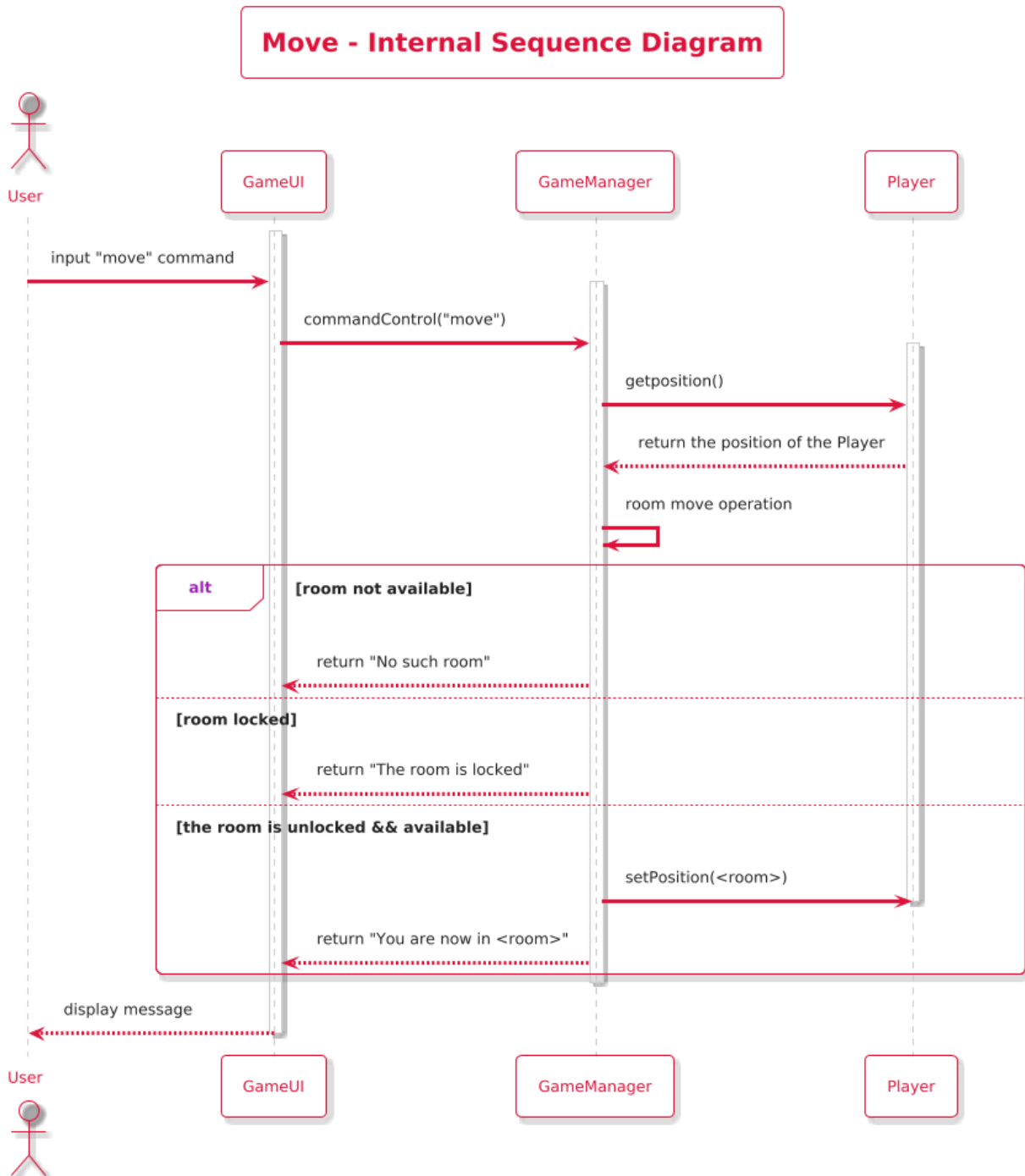
exit

close the game

Player

Game

3 Design Class Model

Design Class Model

4 Internal Sequence Diagram

4.1 Move - Internal Sequence Diagram

Move - Internal Sequence Diagram

User — GameUI — GameManager — Player

- input "move" command (User → GameUI)
- commandControl("move") (GameUI → GameManager)
- getposition() (GameManager → Player)
- return the position of the Player (Player → GameManager)
- room move operation (GameManager self-call)

alt

[room not available]
- return "No such room" (GameManager → GameUI)

[room locked]
- return "The room is locked" (GameManager → GameUI)

[the room is unlocked && available]
- setPosition(<room>) (GameManager → Player)
- return "You are now in <room>" (GameManager → GameUI)

- display message (GameUI → User)

4.2   Save - Internal Sequence Diagram

Save - Internal Sequence Diagram

User → GameUI: insert "save" command

GameUI → GameManager: commandControl("save")

GameManager → GameState: get game progress

GameState → GameSaveServices: save game progress

GameSaveServices: save operation

GameSaveServices ⇢ GameState: return game progress

GameState ⇢ GameManager: operation done

GameManager ⇢ GameUI: return "Game saved"

GameUI ⇢ User: display message "Game saved"

4.3 Use - Internal Sequence Diagram

Use - Internal Sequence Diagram

User → GameUI: insert "use <item>" command
GameUI → GameManager: commandControl("use <item>")
GameManager → Inventory: searchItem(<item>)
Inventory → Item: getName(<item>)
Item --> Inventory: return name
Inventory → Inventory: contains(<item>)

alt [item not present]
Inventory --> GameManager: return boolean False

[item present]
Inventory --> GameManager: return boolean True

alt [item is Medicine]
GameManager → Medicine: use item
Medicine → Player: restore player HP
GameManager → Inventory: removeItem(<item>)

[item is Weapon]
GameManager → Weapon: use item
Weapon → Player: buff player atk

[special item]
GameManager → Item: use item
Item → Enemy: enemy HP drops to zero
GameManager → Inventory: removeItem(<item>)

GameManager --> GameUI: return message
GameUI --> User: display message