

Context:

2k has decided to go back in time and develop a platform game inspired by Derrick Rose. Derrick's mission is to collect three special items so he can win the game and defeat the evil city cats. The game will take place in the streets of Chicago, home of the Bulls, the team where Derrick started his career.

Entities:

- User/Player
- Derrick (Main character)
- Enemy Cat
- Power Up
 - Speed Shoes
 - Health Heart
 - Special Basketball
- Coin

Functional Requirements:

FR1	
Description	The program should allow players to register using their nickname
Inputs	Player nickname
Outputs	
Precondition	
Postcondition	Player is registered

FR2	
Description	The program should save the players' score, the date the game was played, and the duration of the match.
Inputs	Players' score, date, and match duration
Outputs	
Precondition	The player must have completed the match successfully
Postcondition	The player score, date, and match duration is saved

FR3	
Description	The program must have a screen where all the players and their match information is shown
Inputs	Players
Outputs	
Precondition	Players list is initialized
Postcondition	All players scores are shown

FR4	
Description	The program should allow sorting of the players naturally by their score
Inputs	Players and their scores
Outputs	
Precondition	Players list is initialized
Postcondition	Players are sorted by their scores

FR5	
Description	The program should allow sorting of the players partially by their game time
Inputs	Players and their times
Outputs	
Precondition	Players list is initialized
Postcondition	Players are sorted by their times

FR6	
Description	The program should allow sorting of the players partially by their nickname
Inputs	Players and their nickname
Outputs	
Precondition	Players list is initialized
Postcondition	Players are sorted by their nickname

FR7	
Description	The program should allow sorting of the players partially by their date
Inputs	Players and their date
Outputs	
Precondition	Players list is initialized
Postcondition	Players are sorted by their date

FR8	
Description	The program should show an error message if the player nickname exceeds ten characters
Inputs	Player nickname
Outputs	
Precondition	
Postcondition	An error message is shown if the nickname is too long

FR9	
Description	The program should not allow the player to obtain more than three lives
Inputs	
Outputs	
Precondition	
Postcondition	The player does not see an increment in their lives because they already have three

FR10	
Description	The program should make a player lose if they run out of time before they complete the level
Inputs	
Outputs	
Precondition	
Postcondition	The player is shown a game over screen and his score isn't saved

FR11	
Description	The program should move the main character using vectors to obtain fluid mobility
Inputs	
Outputs	
Precondition	
Postcondition	The main character moves fluidly

FR12	
Description	The program should have constant gravity while playing
Inputs	
Outputs	
Precondition	
Postcondition	The game screen has constant gravity

FR13	
Description	The program should have an information bar with the time remaining, lives remaining, and the power-ups obtained
Inputs	
Outputs	
Precondition	
Postcondition	Information bar is shown on the game screen

FR14	
Description	The program should take away lives if the main character bumps into an enemy
Inputs	
Outputs	
Precondition	
Postcondition	The players' lives are decreased if it bumps into an enemy

FR15	
Description	The program should increase the main characters' speed for five seconds when he grabs the speed shoes
Inputs	
Outputs	
Precondition	
Postcondition	Main characters' speed is increased for five seconds

FR16	
Description	The program should add one life if the player grabs the health heart
Inputs	
Outputs	
Precondition	
Postcondition	One life is added to the players' total lives.

FR17	
Description	The program should make the main character invincible for five seconds when he grabs the special basketball
Inputs	
Outputs	
Precondition	
Postcondition	The main character is invincible for five seconds

FR18	
Description	The program should make the player win once it grabs all the power-ups and approaches the hoop
Inputs	
Outputs	
Precondition	
Postcondition	A winning message is shown and the players' score is saved

FR19	
Description	The program should keep count of the score when the player grabs coins or power-ups
Inputs	
Outputs	
Precondition	
Postcondition	Players' score is kept

FR20	
Description	The program should have an interactive instructions menu
Inputs	
Outputs	
Precondition	
Postcondition	An interactive instructions menu is shown

Non-Functional Requirements:

- The program will be coded in Java using the processing library
- Control P5 will be used for input control
- The program will have a pixel art style
- The program will have music
- The program will have a responsive design