 the high level goal of your project, what it should look like (design and interaction), testing, challenges that you might run into, etc. Really anything that has to do with creating a well designed project. Be thorough and show that you've put thought into the idea and the design.

## CIS 110 Project

High – Level Goal

The project is about a simple game called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

This game involves a female character that moves over a grassy field picking items i.e. flowers or candy. The user has a certain amount of time over which they can pick the items and when this time expires, the screen clears and the number of items they picked, the number of moves, plus a message are displayed on the screen.

Design and Interaction

* The character will be an image with given start coordinates e.g. (0, 0) (0.5, 0.5)
* The character can move left, right, up and down depending on what key the user presses. The movement of the character will be in form of a linked list, where each movement is a Node that contains a point. For example, if the character moves up, a new Node is created with a point that mimics upward movement. In the movement, we only change the coordinate points of the image character.
* The items will also be images and they will be scattered randomly throughout the game canvas. If the user moves and the point it moves to coincides with an item point, the item will disappear i.e. call PennDraw.CLEAR and then draw everything else except the item that has been ‘picked’
* When the game begins, the user will be prompted to choose their character between four different characters and they will also be able to choose their items from different choices of flower or candy.
* Keypresses will be the main interaction between the user and the game i.e. The user will press certain keys to choose characters, move the character chosen etc.
* Each image will be compressed to a certain small size so as to make the game feasible. The characters will be bigger than the items.

Testing

* Testing for this program will mainly be in the game canvas.
* Testing will be done with simple shapes first before moving onto more complex images.

Challenges

* Incorporating a timer API into the program from scratch
* Making the items which have been ‘picked’ disappear.
* Making the code as efficient and concise as possible i.e. I think there will be many if-else statements because of the different user interactions with keypresses so how best to optimize this and other functions in the code.

How precisely will your project use the LinkedList you implemented?

The movement of the character will use a linked list. Each time the user presses a key for the character to go left, for example, a new Node with a new point that mimics movement in the left direction.

How precisely will your project use recursion?

The insert function of the LinkedList will be implemented recursively.

The number of moves will also use a function that counts each time a Node is added, and this will be done recursively.