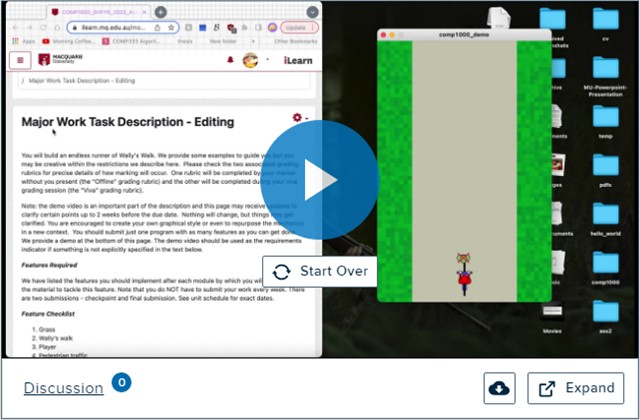
Major Work Task Description S2 2022

You will build an endless runner of Wally's Walk. We provide some examples to guide you but you may be creative within the restrictions we describe here. Please check the two associated grading rubrics for precise details of how marking will occur. One rubric will be completed by your marker without you present (the "Offline" grading rubric) and the other will be completed during your viva grading session (the "Viva" grading rubric).

Note: the demo video is an important part of the description and this page may receive updates to clarify certain points up to 2 weeks before the due date. Nothing will change, but things may get clarified. You are encouraged to create your own graphical style or even to repurpose the mechanics in a new context. You should submit just one program with as many features as you can get done. We provide a demo at the bottom of this page. The demo video should be used as the requirements indicator if something is not explicitly specified in the text below.

Demo Video



# Features Required

We have listed the features you should implement after each module by which you will have learned the material to tackle this feature. Note that you do NOT have to submit your work every week. There are two submissions - checkpoint and final submission. See unit schedule for exact dates.

# Feature Checklist

1. Grass
2. Wally's walk
3. Player
4. Pedestrian traffic
5. Cokes (no sugar)
6. Collisions
7. Trees



The canvas should be 400 pixels wide and 600 pixels high. If that appears too tiny on your screen you can have your canvas be 500 pixels wide and 750 pixels high instead.

* Grass

There should be two grassy strips on either side of the canvas. The width of these strips should be 1/5 of the canvas width. These strips can be a solid colour of your choosing.

* Wally's walk

Wally's walk should be in the middle of the two grassy strips taking up 3/5 of the canvas width. Later we will draw Wally's walk using squares to mimic paving, but for now, Wally's walk can be a rectangle (see demo video for demonstration). Wally's walk can be a solid colour of your choosing distinguishable from the colour chosen for the grassy strips.

# • Player design

Come up with a design for your player that will be travelling down Wally's walk. The player in the demo is on their bicycle but you are free to come up with your own design. To receive marks the player must be a complex shape, made up of 3 or more simple shapes.

Have the player situated at the bottom of the canvas as shown in the demo.

Some of your code may need to be changed later when it is time to move each individual shape as one. In week 2, it is just the look of the player to focus on. Your player should be of similar size to the player from the demo.

• Pedestrian design

Come up with a design for your pedestrian. It doesn't need to actually be a pedestrian, just something for your player to avoid as they traverse Wally's walk. Pedestrians should be of a similar size to those shown in the demo.

## Module 2: Variables Conditionals

* Player movement

Have the player controlled using the •a' and 'd' keys to move left and right respectively. The player must not be able to go beyond the boundaries of Wally's walk.

* Single Pedestrian

Have a single pedestrian move down Wally's walk towards the player. When the pedestrian ventures off screen have another pedestrian roll onto the screen from the top as shown in the demo.

# • Collisions

If the player hits the pedestrian the game must end. There should be some indication that the game is over, nothing should move on screen and user input should have no effect on player movement.

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* Wally's Walk

Draw Wally's Walk using squares. To receive marks this must be done using a nested loop. For full marks have Wally's Walk "move" as shown in the demo video.

You might find the following program useful for this part: https://ilearn.mq&du@uZpluginfik2hp/8070070/mod page/content/64/drawCircles.pde

* Trees

Draw a total of six trees, three on each side of Wally's Walk. Have these trees "move" with Wally's Walk. To receive marks, the positioning of the trees must be attained using a nested loop.



* Pedestrian Traffic

Have up to 6 oncoming pedestrians on screen at any time. For full marks, pedestrians should walk or run at different speeds toward the player. When a pedestrian disappears off-screen, a new pedestrian with a randomised x-coordinate and randomised speed should roll onto the screen. Pedestrians should only spawn on Wally's walk and continue down, they must not appear on the grassy areas. As before, the game is over if the player collides with any of the 6 on-screen pedestrians.

To receive marks this must be implemented using compound data.

# • Cokes (no sugar)

The player likes to drink Coke with no sugar.

Have up to 3 cokes (with no sugar) on screen at any time for your player to pick up. The cokes must disappear when the player collides with them to indicate that the player has picked them up. Once a coke is collected, or when it disappears off-screen, a new coke with a randomised x-coordinate must then roll onto the screen. The cokes must only spawn on Wally's walk and continue down, they must not appear on the grassy areas. The cokes must appear to be stationary relative to the movement of Wally's Walk (i.e. moving at the same speed as Wally's Walk towards the player).

The cokes should be a similar size to those shown in the demo. They don't need to be coke either, you can design any kind of item for your player to pick up so long as they are of similar size to the cokes.

To receive marks this must be implemented using compound data.

• Randomised Trees

Have each tree be randomised such that the scale, number of bulbs and branch radius is different for each tree. As a tree disappears off screen, have a new randomly generated tree roll onto the screen. For full marks to have the same function and be responsible for drawing each tree, use the following function signature:

void drawTree(float x, float y, float scale, int bulbs, float radius)

To receive marks this must be implemented using compound data.

## Constraints

Why-do-these-exist?

* You cannot use any extra processing libraries or plugins  You cannot define your own classes.
* The only built-in java classes you can use are PVector, PShape. Although, we recommend not using them.  You cannot use multiple tabs or multiple files
* You cannot use transformations such as rotate, translate, scale  You cannot use images
* You must submit a single .pde file named exactly COMPIOOOMajorWork.pde (not COMPIOOO Major Work.pde, not COMPIOOOMajorWork (l).pde, not aladdin.pde.„)  You will get an immediate zero if there is any violation.

DO I need to have that little X show when I hit a pedestrian?

No, that isn't worth any marks. I've included it in the demo to illustrate collision detection.

DO I need to have the golf cart as well as the pedestrians for full marks?

No, I've just included the golf cart to make the demo look nicer.

If the pedestrians are implemented correctly using arrays then you will receive full marks for that rubric item. If multiple pedestrians are not implemented, or not implemented correctly using arrays, then some marks can be received by implementing a single pedestrian. See the marking rubric for this information.

Does my grass need to have the same pixelated colour effect as in the demo?

No, your grass can be a solid green and you can still receive full marks for that rubric item. The pixelated colour effect was only included in the demo to make it look nice.

Does my game need to be able to restart?

No, there needs to be some indication that the game is over but you will not be assessed on a restart feature (although you are free to include it!).

Do I need to include the "Game Over" text?

To receive marks, once a collision has occurred nothing can continue to move or be moved. That is, all moving things must halt and the movement keys should have no effect on the player. You don't need to include the "Game Over" text either.

Do my pedestrians need to be multicoloured as shown in the demo?

No, your pedestrians can be all the same colour (they can all be blue for instance). But for full marks, you need to have them walk (or run) at different paces.

Do I need to have those dots on Wally's Walk to make it look like concrete as shown in the demo?

No, the dots are not worth any marks.