CSE423 Lab Project:

Using Python OpenGL

Project name: Gardening

Group Number - 05

Group Members:

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Theory Section: 05

Submission Date: 14.12.22

Project name: Gardening

Window size: 1000*1000 px

First frame: A plot of land ready to grow some plants. Background: a house and a road made with 8 way symmetry line drawing algorithm, and a sun that was translated from a circle we initially made using midpoint circle algorithm,

```
sun_1 = transformation(circle, scale(0.5), translation(-0.5,0.7))
```

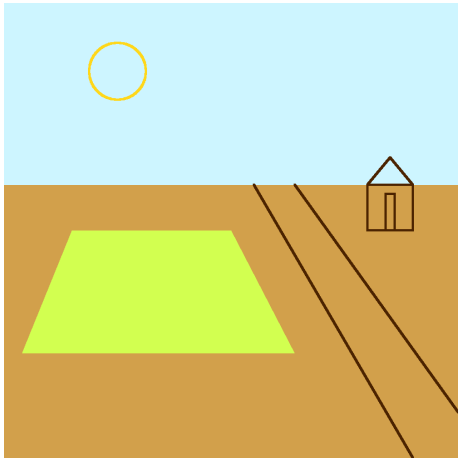
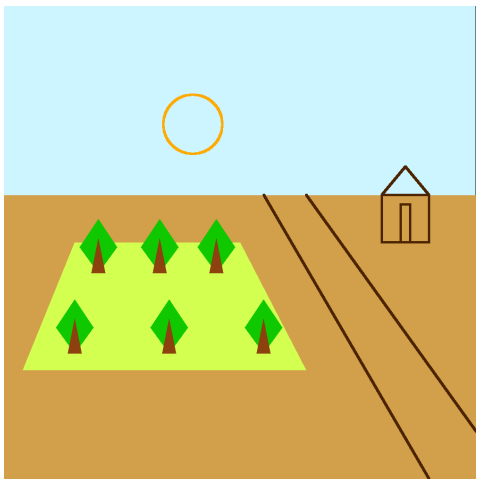


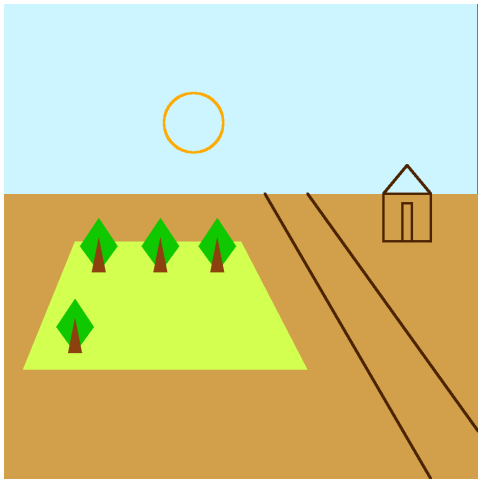
Fig. first frame

First input: A number, n between 1 to 6 to represent how many plants will be grown.

Second frame: The specified number of small plants will show up on the plot of land. 6 spots where the plants can be grown are saved in an array named `spots` which is then sliced from index 0 to n-1. Only one small plant's coordinates were saved and then those points were translated for all the small plants at positions from the sliced array. For example,



n = 6



n=4

Second Input: a string input of size n is taken to mention which of the plants to grow. E.g. If the first input is n=6 and the second input is 110100, then the 1st, 2nd and 4th plants counting from the top left, are watered with a blue watering pot and then they grow into a big tree in the fourth frame while the rest stays as before. (in our virtual world, if the plants aren't watered, they stay the same). The big trees and the watering pots are transformed using a transformation matrix and positioned in the same way as the small plants.

Also, in frame 1,2 and 4 the position of the sun is translated to show a setting sun.

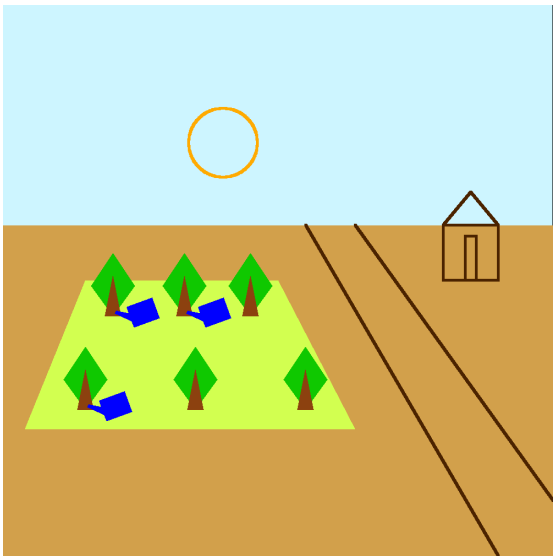


Fig. Third frame. Input: n=6 and 110100

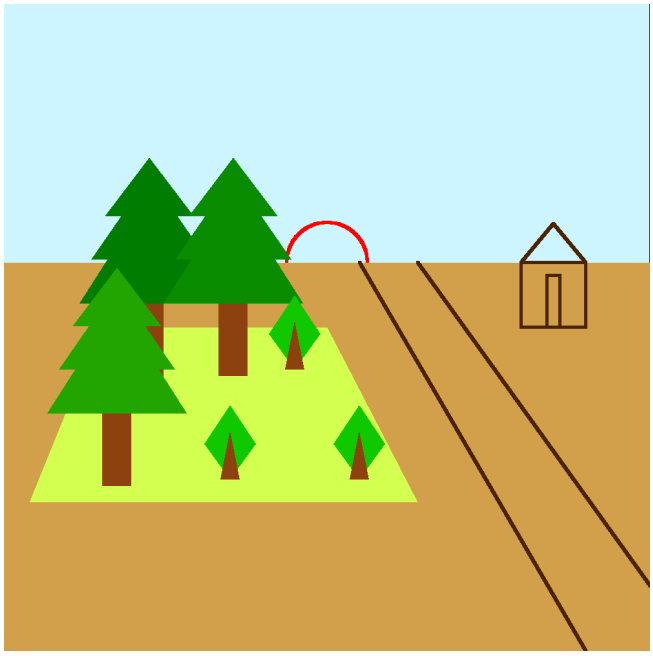


Fig. Fourth frame