*CMSC 101/IS 101Y Project Deliverable 1*

Design

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Program name: Garden

***Part 1: Architecture***

Major functions:

void setup ()

create the display window

get number of plants from the user

error checking (# of plants in range)

get type of plants from the user

error checking (recognized plant type)

load the image of the plant into plantPicture

error checking (file loads correctly)

call drawbutton

void draw ()

<does nothing for this program but must be called>

void mouseClicked ()

if the mouse inside the button, call drawLayout

void drawButton (String plantName)

draw a box

put text in the box that says “Plant” and then the type of plant being planted (plantName)

void drawLayout (int numPlants)

use nearestSquare () to determine the number of plants in each full row

store this number in rowSize

initialize plantsDrawn to 0

for j from 1 to rowSize

for i from 1 to rowSize

draw plantPicture at the position that is i plants from the left and j plants from the top

increment plantsDrawn

if we’ve drawn enough plants exit out of both for loops

int nearestSquare (int numPlants)

return the square root of numPlants, rounded up

***Part 2: Data***

Variables:

final int MaxPlants = 100; // constant defining the most plants we can draw

int numPlants; // the number of plants as entered by the user

String typePlant; // the type of plants as entered by the user

int rowSize; // number of plants in each full row

int plantCount; // keeps track of the number of plants displayed so far PImage plantPic ; // the image of the plant being displayed

***Part 3: Look and feel***

The final layout should look like this (for numPlants = 16 and typePlant = “carrots”):

16-carrots.tif

If numPlants is not a perfect square, then the layout should be as close as possible to a square, but the last row will not be completely full.

***Part 4: Extensions***

We plan to implement the following extensions:

1. Allow the user to plant at least three additional types of plants.
2. Allow the user to choose the plant type from a list rather than type in the name.