ENGR 231 – Linear Engineering Systems

Lab 7: Pacman Game!

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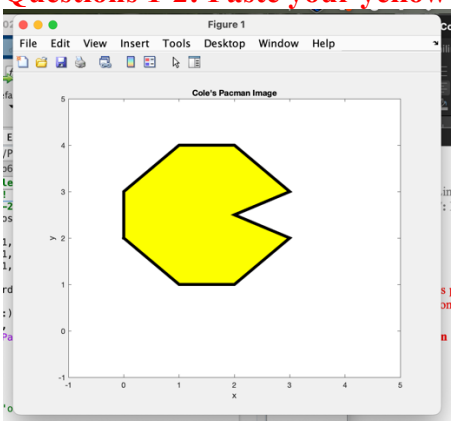
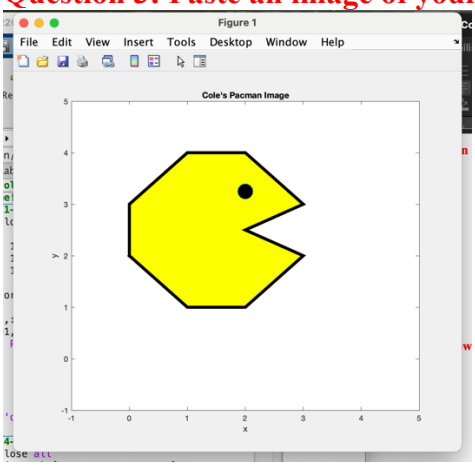
As a convenience, this **answer template** is provided if you wish to easily submit your work. Be sure to save it as a PDF before submitting online!

Questions 1-2: Paste your yellow Pacman image here. Must not show the dots.



Question 3: Paste an image of your yellow Pacman with black eye here.



Questions 4-5: Anonymous functions

Question 4: After defining the anonymous function `translate(dx,dy)` as above, find the result of:

```
>> translate(3,5) * [5; 8; 1]
```

Answer: **[8; 13; 1]**

Question 5: Show your inline code for the anonymous function `rotate(d)`.

Paste code here:

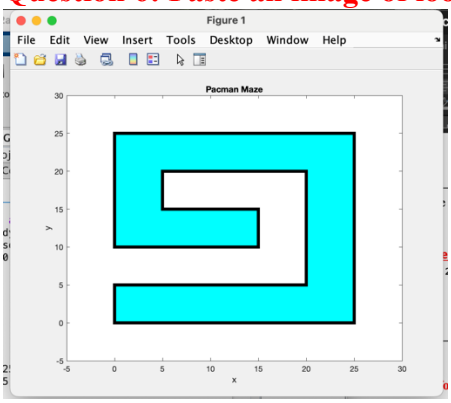
```
rotate = @(d) [cosd(d), -sind(d), 0; sind(d), cosd(d), 0; 0,0,1];
```

Calculate both vectors and paste in the result. Does v1 = v2?

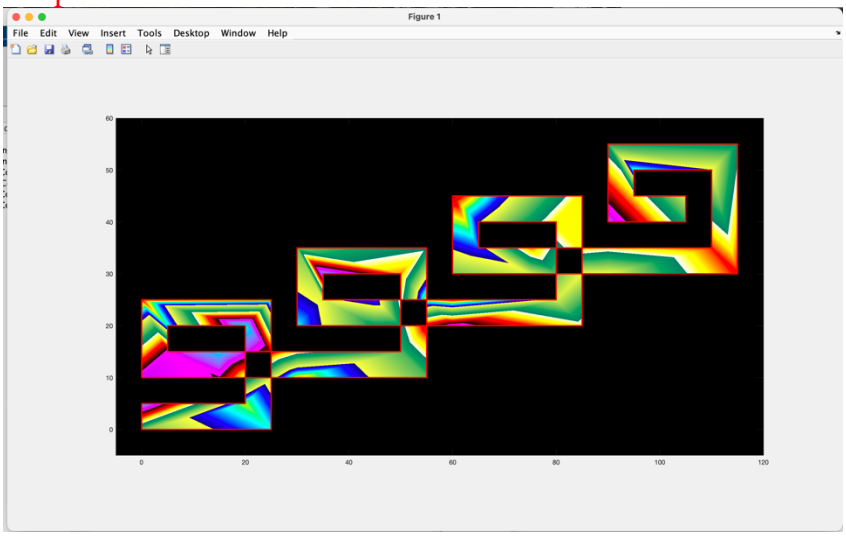
```
v1 = rotate(30) * rotate(60) * [7;24;1]
v2 = rotate(90) * [7;24;1]
```

Answer: Yes:
v1 = [-24; 7; 1]
v2 = [-24; 7; 1]

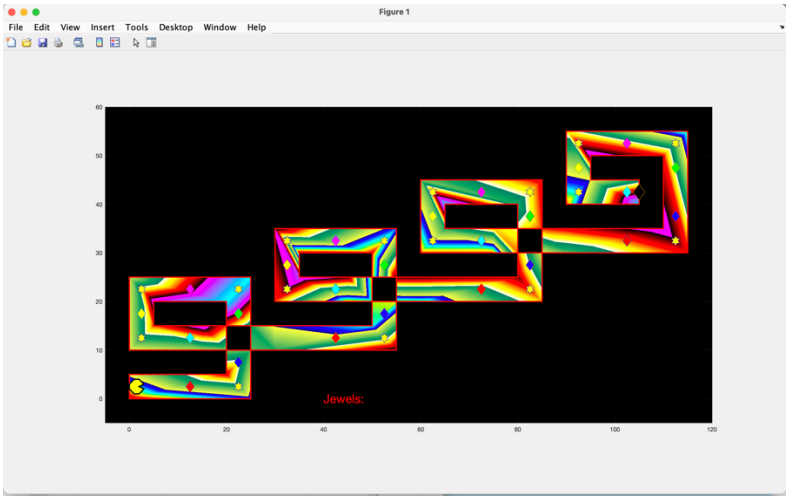
Question 6: Paste an image of loop one for the maze here. (No dots!)



Question 7: Paste an image of your **Four Loop** Maze here. Must be different than my two samples.



Question 8: Paste in your image showing the four-looped maze, the large black jewel, PACMAN, the 24 bonus jewels and the 16 turning points. You **must** use a different color pattern for the maze than mine.



Question 9: Paste your code for crossing the void here.

```
% Pacman earns 100 points on each crossing of the voids
if ismember(pacman_center', voids', 'rows')
    % Add code here to handle crossing the void
    % 1. Increase the score by 100
    score = score + 100;

    % 2. Update the title message and display it in the title in magenta
    title_message = strcat("PACMAN SCORE: ", int2str(score) );
    title(title_message, 'Color', 'magenta')

    % 3. Using fprintf, display the requested message in the command window.
    fprintf("Reward for crossing the void: +100 points\n");

    % 4. Play music1 using the sound command.
    sound(music1, Fs1);

    pause(0.4)  % extra time delay when a void is crossed
end
```

Question 10: What is the final score?

Pacman's final score after gobbling all the crystals, crossing the voids and then doubling his/her total score upon winning the large **black** crystal is:

Final Score = 2020

That's it! Hope you enjoyed the game! 

Ready to Submit?

Be sure all ten questions are answered. When your lab is complete, be sure to submit three files:

1. Your **completed Answer Template** as a PDF file
2. A copy of your **MATLAB Ordinary m-file**
3. A **PDF** copy of your **MATLAB Ordinary m-file** (Save-Export to PDF…)

The due date is the day after your lab section by **11:59pm** to receive full credit. You have one more day, to submit the lab (but with a small penalty), and then the window closes for good and your grade will be zero.