Week 02, Homework 02	Weight: 2%	Due: Friday week 3, 11:59pm (via sync)

Pre-homework Preparation:

- **Lab: Week 02, Lab 02**
- **Lectures: Weeks 01, 02**

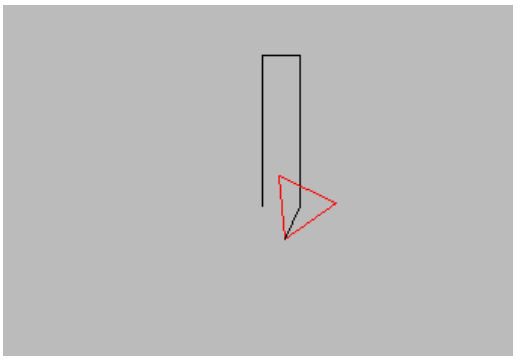
Homework Activities:

For each question's source file, be sure to fill in the file comment header accurately!

Question 1: Using a loop

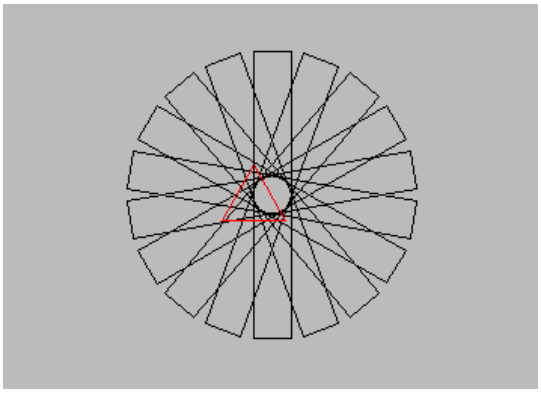
Navigate to the directory: **`~/p1.2015s1/homework02/working_copy/q01/`**

Compile **`hw02q01.c`** and run the resulting executable, it currently outputs the following:



Open **`hw02q01.c`** in the text editor. Note the comments in the file, enclose the source code below and above the single line comments in a loop. The loop must iterate eighteen times.

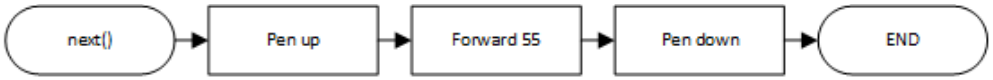
Compile **`hw02q01.c`** and run the resulting executable, check that it now outputs the following:

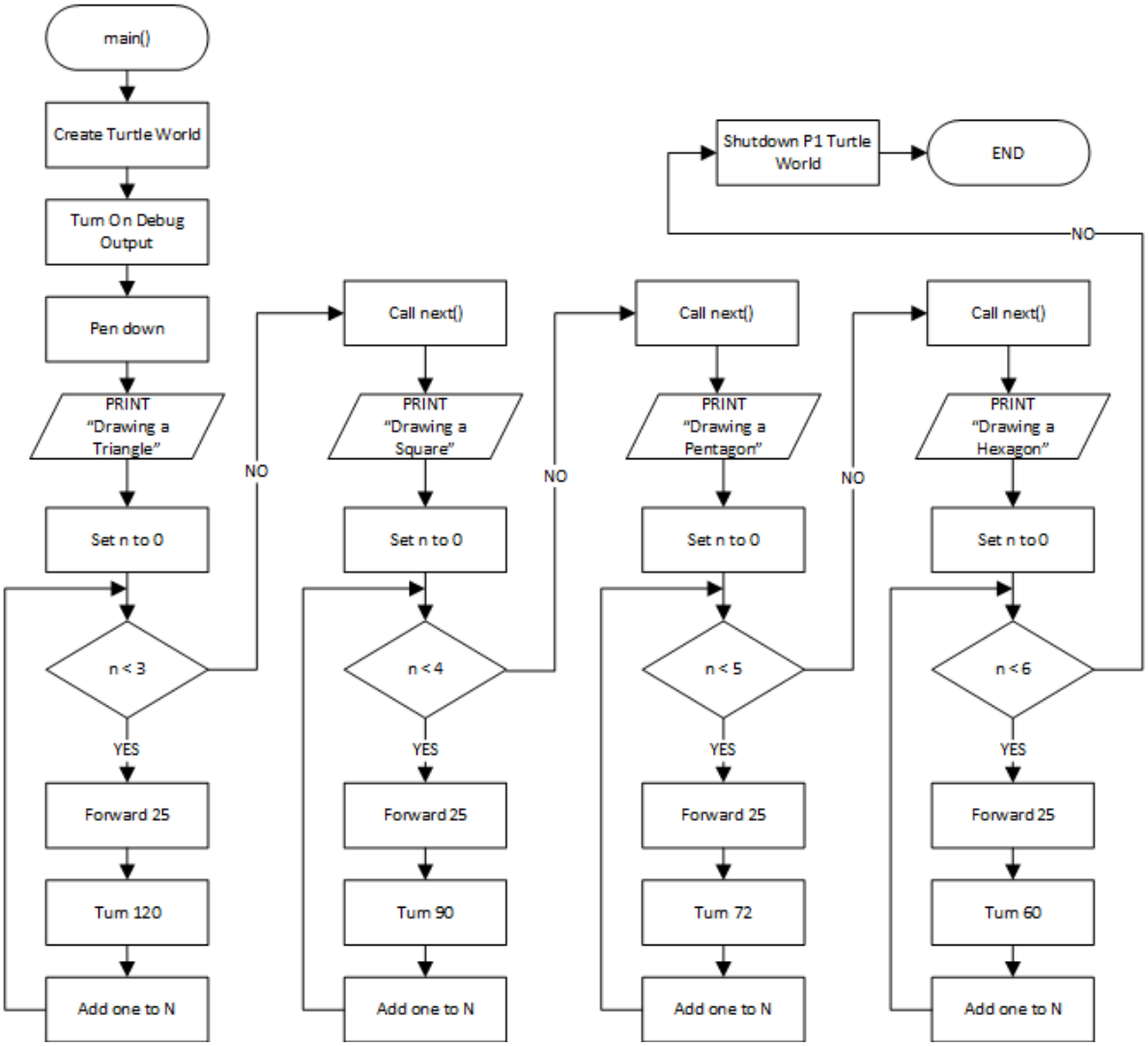


Question 2: Implementing Flowcharts with Loops

Navigate to the directory: **`~/p1.2015s1/homework02/working_copy/q02/`**

Open **`hw02q02.c`** in the text editor. Turn the following two flowcharts into source code for the **`main`** function and the **`next`** function.





Run **`make`** to compile your code. Run: **`./hw02q02`** to test your program. What does it output? Does your program's output match what the flowchart would output?

Question 3: Using Parameters Passed to Functions

Navigate to the directory: **`~/p1.2015s1/homework02/working_copy/q03/`**

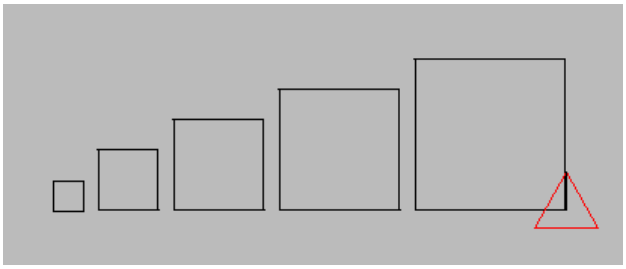
Open **`hw02q03.c`** in the editor. The source code of the **`draw_polygon`** function is incomplete. The function takes in a parameter called **`number_of_sides`**, this represents the number of sides to draw for the polygon. A three-sided polygon is a triangle, a four-sided polygon is a square, a five-sided polygon is a pentagon, etc. Complete the code in the **`draw_polygon`** function such that it can draw a polygon based upon the value in parameter **`number_of_sides`**.

Run **`make`** to compile your code. Run: **`./hw02q02`** to test your program. Does your program now output a triangle, a square, a pentagon and a hexagon? If so, then add code to the main function to draw a seven-sided figure, and an eight-sided figure. You will also need to change the next function to space the polygons out by a larger number of pixels, perhaps 65 instead of 55.

Question 4: Using Parameters Passed to Functions

Navigate to the directory: **`~/p1.2015s1/homework02/working_copy/q04/`**

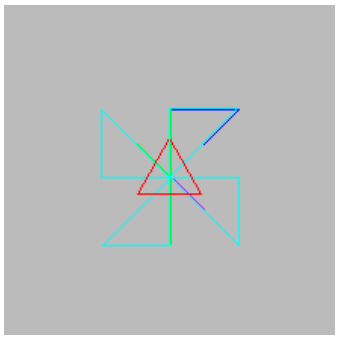
Open **`hw02q04.c`** in the editor. The source code of the **`draw_square_of_size`** function is incomplete. The function takes in a parameter called **`side_length`**, this represents the number of pixels in the length of the side of the square to be drawn by this function. Complete the code inside this function to draw a square, depending on the **`side_length`** parameter. Once complete, compile and run, your program should output the following:



Question 5: Using Parameters to Scale a Drawing

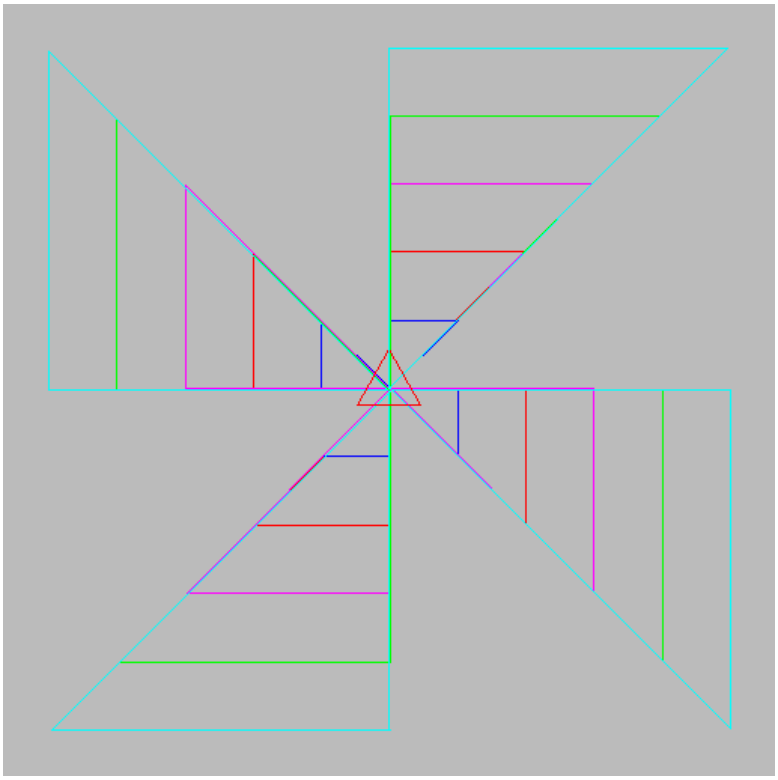
Navigate to the directory: **`~/p1.2015s1/homework02/working_copy/q05/`**

Open **`hw02q05.c`** in the editor. The main function calls the **`draw_windmill`** function five times, each time with a different parameter. Compile and run the program. At present, when run the turtle will draw the following:



This is because the parameter input into the **`draw_windmill`** function, the **`scale_factor`**, is not used by the **`draw_windmill`** function. Modify the **`draw_windmill`** function such that the windmill pattern will draw at the scale requested by the parameter **`scale_factor`**.

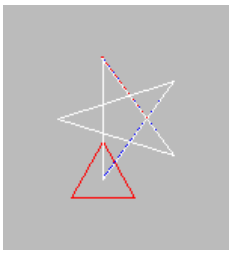
Your resulting code should draw the following:



Question 6: Using Parameters to Draw at an Offset

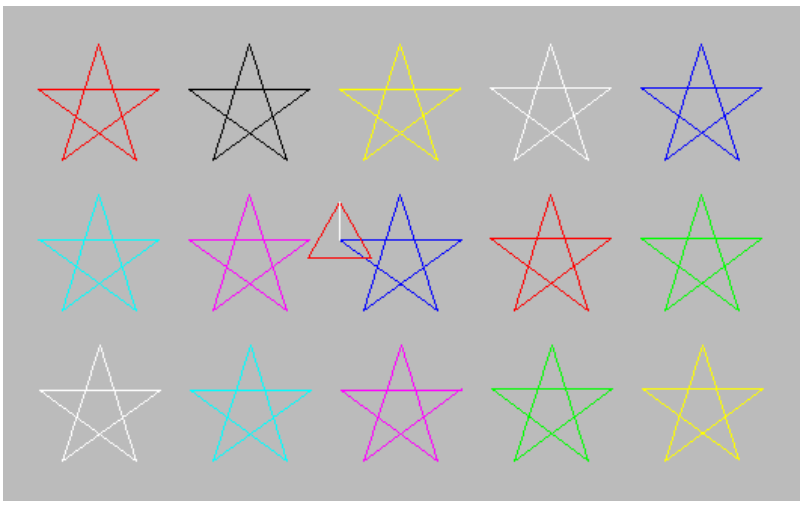
Navigate to the directory: **`~/p1.2015s1/homework02/working_copy/q06/`**

Open **`hw02q06.c`** in the editor. The main function calls the **`draw_five_point_star_at`** function multiple times, each time with a different parameters. Compile and run the program. At present, when run the turtle will draw the following:



This is because the parameters input into the **`draw_five_point_star_at`** function, **`x_offset`** and **`y_offset`**, are not used by the **`draw_five_point_star_at`** function. Modify the **`draw_five_point_star_at`** function such that the star pattern will be drawn at the x and y position requested by the parameters **`x_offset`** and **`y_offset`**.

Your resulting code should draw the following:



Question 7: Draw something creative!

Navigate to the directory: **`~/p1.2015s1/homework02/working_copy/q07/`**

Open **`hw02q07.c`** in the editor. Using your new loop and parameter passing knowledge, draw something creative! Add colour!

Homework Submission:

Run the **`sync`** command to submit your completed homework.

Marking Criteria:

Have you completed each of the following?

Marking Criteria:	Week 02, Homework 02 Weight 2%	Maximum Possible Mark:	Mark achieved?
Q1:	Loop added which correctly repeats 18 times?	2	
	Good commenting practices followed?	2	
Q2:	next() function correctly implemented?	2	
	main() function correctly implemented?	10	
	Good commenting practices followed?	5	
Q3:	draw_polygon() function correctly completed?	3	
	main() function modified to draw a seven-sided figure?	2	
	main() function modified to draw an eight-sided figure?	2	
	Good commenting practices followed?	3	
Q4:	draw_square_of_size() function modified to draw square based upon input parameter?	3	
	Good commenting practices followed?	2	
Q5:	draw_windmill() function modified to allow drawing of the windmill at the scale specified by the scale_factor parameter?	5	
	Good commenting practices followed?	3	
Q6:	draw_five_point_star_at() function modified to allow drawing of the star at the offset specified by the input parameters?	15	
	Good commenting practices followed?	3	
Q7:	Personal creative drawing implemented?	2	
	Colour used?	2	
	Functions with input parameters defined and called?	2	
	Loops used to repeat commands?	2	
Total:		**70**	