Control Flow

Due Sunday by 11:59pm **Points** 100 **Submitting** a file upload **File Types** pdf
Available Jan 23 at 12am - May 23 at 11:59pm 4 months

This is a team assignment. One submission per team, please!

Use C/C++/Java/VBasic only for writing the code.

I Progress Bar

Some progress bars are circles. Assume we have a progress bar, that shows its progress as a sector of a circle. Imagine your screen as a square on the X, Y plane with its bottom-left corner at (0, 0), and its upper-right corner at (100, 100). Every point on the screen is either red or blue. Initially, the progress is 0%, and all points on the screen are blue. When the progress percentage**,** P, is greater than 0%, a sector of angle (P% * 360) degrees is colored red, anchored by the line segment from the center of the square to the center of the top side, and proceeding clockwise. Given the percentage completed and a point (X, Y), determine out whether that point will be red or blue.

Write a function that takes P (percentage completed), X (x coordinate of a point) and Y (y coordinate of the same point) as arguments and prints “RED” or “BLUE” as output. RED if the given point will be colored red and BLUE if the given point will have blue color for P% progress.

Draw control flow diagram for the same code you wrote above.

Write an Oracle including five test cases (with reasons). Draw the paths executed by these. State what percentage of statement, branch and path coverages are achieved.

Write additional test cases to achieve complete statement and branch coverage. Present these in a table separate from the Oracle.

II Tower of Hanoi

Write a recursive function that implements the Tower of Hanoi problem. Draw a control flow graph for this function.

To keep things consistent, please upload assignment submissions as a single PDF file. Make sure you use a comfortable (12 point) font size and double space everything.

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Control Flow Testing

Criteria	Ratings			Pts
Progress Bar *Source code Oracle with test cases Additional test cases*	60.0 pts Excellent	30.0 pts Average	0.0 pts Poor/Late	60.0 pts
Tower of Hanoi *Source code CFG*	30.0 pts Excellent	15.0 pts Average	0.0 pts Poor/Late	30.0 pts
Presentation *Follow instructions Easy to understand and grade*	10.0 pts Excellent	5.0 pts Average	0.0 pts Poor/Late	10.0 pts
				Total Points: 100.0