BRAC University
Department of Electrical and Electronic Engineering

EEE/ECE-103IL: Computer Programming Laboratory
Fall 2025 (Section: 02)

Lab Final

1. Develop a **C program** that dynamically allocates memory to store **N temperature readings** collected every hour by a data logger. The value of **N** will be provided by the user, and the temperature readings will also be entered by the user. Due to random sampling, the temperature readings are stored in no particular order. [CO4] (10)

   For proper analysis:

   - The reading corresponding to the **coldest hour must appear first**
   - The reading corresponding to the **hottest hour must appear last**
   - This arrangement helps engineers observe the gradual temperature rise throughout the day

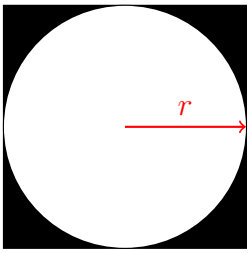
   Write a C program that performs the following tasks:

   - Dynamically allocate memory to store N temperature readings
   - Read **N** temperature values from the user
   - Modify the stored readings to satisfy the analysis requirement
   - Display the final sequence of temperature readings

   Constraints:

   - Dynamic memory allocation is mandatory
   - Do not use any built-in functions

2. The diagram below shows a circle inscribed in a square where the center of the square and the center of the circle coincide. [CO4] (8)



a

   Assume that a is the side length of the square (user-defined input). Write a C program using functions to:

   - Calculate the area of the square
   - Calculate the area of the inscribed circle
   - Determine how many times the area of the square is greater than the area of the circle and print it upto two decimal places

   Use the formula:

$$\text{Area of circle} = \pi r^2$$

3. The following program is supposed to print **all integers** that are not divisible by 3 and 5 and lie between 1 and a user-defined number (inclusive). The program also counts the total **number** of such integers and prints the result. [CO4] (7)

No.	Code	Explanation/Corrected
1		
2	`int main() {`	
3	`int end;`	
4	`printf("Enter the end number:  ");`	
5	`scanf("%f", &end);`	
6	`int i, Count;`	
7	`count = 0;`	
8	`for(i=1; i<end; i++) {`	
9	`    if ((i/3 != 0) & (i/5 != 0)) {`	
10	`        count = count + 1;`	
11	`        printf("%d\n", i)`	
12	`    }`	
13		
14	`printf("Total count is:  %c\n", Count);`	
15	`}`	