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| **Course Name:** | **Programming in C** | **Semester:** | **II** |
| **Date of Performance:** | **10 / 01 / 2025** | **DIV/ Batch No:** | **C4-1** |
| **Student Name:** | **Dhruv Pankhania** | **Roll No:** | **16010124216** |

**Experiment No: 1**

**Title: Working with data types and operators**

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| **Aim and Objective of the Experiment:** |
| Write a program in C to demonstrate the use of data types and operators |

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| **COs to be achieved:** |
| **CO1:** Understand the concepts of data types and operators |

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| **Theory:** |
| Area and Circumference of Circle. Ask the user to enter the value of the radius of a circle. Put the values in the formula for finding the area of a circle and the circumference of a circle and print the outcome for area of a circle and the circumference of a circle.  Input of the distance between two cities in kilometers and converting them into meters, centimeters, feet, and inches.  Ex- If there are two cities "Gwalior" and "Delhi", their distance is 500 kilometers, after converting the distance from a kilometer, the distance value will be: 500000 meters, 1640420 feet, 19685050 inches, and 50000000 centimeters. |

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| **Problem Statements:** |
| Write a program for the following   1. Compute the area and circumference of a circle. 2. Read the distance between two cities in km and print that distance in meters, feet, inches, and centimeters. |

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| **Code :** |
| Q1.  #include<stdio.h>  #include<math.h>  # define pi 3.14159;  *int* main(){  *float* radius;    printf("Enter the radius of the circle: ");    scanf("%f", &radius);  *float* area = radius\*radius\*pi;  *float* circumference = 2\*radius\*pi;    printf("The area of the circle is: %f \n", area);    printf("The circumference of the circle is: %f \n", circumference);    return 0;  }  Q2.  #include<stdio.h>  *int* main(){  *float* distance;    printf("Enter the distance between two cities in km: ");    scanf("%f", &distance);    printf("The distance in meters is: %f\n", distance\*1000);    printf("The distance in feet is: %f\n", distance\*3280.84);    printf("The distance in inches is: %f\n", distance\*39370.1);    printf("The distance in centimeters is: %f\n", distance\*100000);  return 0;  } |
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| **Output:** |
| Q1.    Q2. |

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| **Post Lab Subjective/Objective type Questions:** |
| * 1. What are the basic data types in C?   Each variable in C has its own data type. Data types are used to define the type of data that will be stored in a variable. The basic data types in C are int for integers, float for decimal numbers, char for character, double is used to store integers which are too big to be stored in the int data type.   * 1. Write a table for Operator Precedence and Associativity  |  |  |  |  | | --- | --- | --- | --- | | **Precedence** | **Operator** | **Description** | **Associativity** | | 1 | () | Parentheses | Left to Right | | [] | Square Brackets | | ++, -- | Postfix | | 2 | ++/-- | Prefix | Right to Left | | ! | Logical Not | | sizeof | Size of | | 3 | \*, /, % | Multiplication Division, Modulus | Left to Right | | 4 | +/- | Addition / Subtraction | | 6 | <, <= | Relation Less than | | >, >= | Relation Greater than | | 7 | ==, != | Relational equal & not equal | | 11 | && | Logical AND | | 12 | || | Logical OR | | 14 | = | Assignment | Right to Left | | +=, -+ | Addition / Subtraction Assignment | | \*=, /= | Multiplication /Division Assignment | |

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| **Conclusion:** |
| We learned to use the use of data types and operators. We learn the various data types like int, float, double char etc. We also learn the various operators like addition (+), Subtraction(-), Assignment (=) etc. On the basis of these learning we implemented two programs in C namely, to find area and circumference of circle and second to convert distance in km to meters, feet, inches, centimeters etc. |

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| **Signature of faculty in charge with Date:** |