PRACTICAL – 8

PROGRAM -1

AIM- Create a structure called "Student" with members name, age, and total marks. Write a C program to input data for two students, display their information, and find the average of total marks.

CODE-

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| // Create a structure called "Student" with members name, age, and total marks. Write a C program to input data for two students, display their information, and find the average of total marks.  #include<stdio.h>  struct student  {  char name[20];  int age;  int total\_marks;  };  int main()  {  printf("\n HARSH D \n");  struct student s1, s2;    printf("Enter the name of the first student: ");  scanf("%s",s1.name);  printf("Enter the age of the first student: ");  scanf("%d",&s1.age);  printf("Enter the total marks of the first student: ");  scanf("%d",&s1.total\_marks);    printf("Enter the name of the second student: ");  scanf("%s",s2.name);  printf("Enter the age of the second student: ");  scanf("%d",&s2.age);  printf("Enter the total marks of the second student: ");  scanf("%d",&s2.total\_marks);    printf("The name of the first student is %s\n", s1.name);  printf("The age of the first student is %d\n", s1.age);  printf("The total marks of the first student is %d\n", s1.total\_marks);  printf("The name of the second student is %s\n", s2.name);  printf("The age of the second student is %d\n", s2.age);  printf("The total marks of the second student is %d\n", s2.total\_marks);  float average = (s1.total\_marks + s2.total\_marks) / 2.0;  printf("The average total marks of the two students is %.2f\n", average);  return 0;  } |

OUTPUT-

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PROGRAM -2

AIM- Define a structure named Circle to represent a circle with a radius. Write a C program to calculate the area and perimeter of two circles and display the results.

CODE-

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| // Define a structure named Circle to represent a circle with a radius. Write a C program to calculate the area and perimeter of two circles and display the results.  #include<stdio.h>  #include<math.h>  struct Circle  {  float radius;  };  int main()  {  printf("\n HARSH D \n");  struct Circle c1,c2;  float area1,area2,perimeter1,perimeter2;  printf("Enter the radius of the first circle: ");  scanf("%f",&c1.radius);  printf("Enter the radius of the second circle: ");  scanf("%f",&c2.radius);  area1 = M\_PI \* pow(c1.radius,2);  area2 = M\_PI \* pow(c2.radius,2);  perimeter1 = 2 \* M\_PI \* c1.radius;  perimeter2 = 2 \* M\_PI \* c2.radius;  printf("\nThe area of the first circle is %f\n",area1);  printf("\nThe area of the second circle is %f\n",area2);  printf("\nThe perimeter of the first circle is %f\n",perimeter1);  printf("\nThe perimeter of the second circle is %f\n",perimeter2);  return 0;  } |

OUTPUT:-

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PROGRAM -3

AIM- Write C Program using Union.

CODE-

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| #include <stdio.h>  #include <string.h> // Include the string.h library for string manipulation functions  // Define a union called Data  union Data {  int i;  float f;  char str[20];  };  // Main function  int main() {  // Print name  printf("\nHARSH D\n");  // Print size of union  printf("Size of union: %d\n", sizeof(union Data));  // Create an instance of Data union  union Data data;  // Assign and print integer data  data.i = 10;  printf("data.i: %d\n", data.i);  // Assign and print float data  data.f = 220.5;  printf("data.f: %f\n", data.f);  // Assign string data using strcpy  strcpy(data.str, "HARSH");  // Print string data  printf("data.str: %s\n", data.str);  return 0;  } |

OUTPUT-

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PROGRAM - 4

AIM- Write a Code For Nested Structure

CODE-

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| // Write a Program For Nested Structure  #include<stdio.h>  // Define the inner structure for student details  struct student\_details {  int roll;  char name[20];  int marks;  };  // Define the outer structure for student information  struct student {  struct student\_details details;  };  int main() {  // Create instances of the outer structure  struct student s1, s2;  // Input details for student 1  printf("Enter Roll Number Of Student 1: ");  scanf("%d", &s1.details.roll);  printf("Enter Name Of Student 1: ");  scanf("%s", s1.details.name);  printf("Enter Marks Of Student 1: ");  scanf("%d", &s1.details.marks);  // Input details for student 2  printf("Enter Roll Number Of Student 2: ");  scanf("%d", &s2.details.roll);  printf("Enter Name Of Student 2: ");  scanf("%s", s2.details.name);  printf("Enter Marks Of Student 2: ");  scanf("%d", &s2.details.marks);  // Output details for student 1  printf("\nStudent 1 Details:\n");  printf("Roll Number: %d\n", s1.details.roll);  printf("Name: %s\n", s1.details.name);  printf("Marks: %d\n", s1.details.marks);  // Output details for student 2  printf("\nStudent 2 Details:\n");  printf("Roll Number: %d\n", s2.details.roll);  printf("Name: %s\n", s2.details.name);  printf("Marks: %d\n", s2.details.marks);  return 0;  } |

OUTPUT-

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PROGRAM - 5

AIM- Write a Code For Bit Field

CODE-

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| // Write a Code For Bit Field  #include <stdio.h>  struct data  {  int a:2;  int b:4;  int c:4;  };  int main()  {  printf("Size Of Struct = %d" , sizeof(struct data));  struct data d1;  d1.a = 2;  d1.b = 15;  d1.c = 14;  printf("\n a = %d" , d1.a);  printf("\n b = %d" , d1.b);  printf("\n c = %d" , d1.c);  return 0;  } |

OUTPUT:-

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