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**Practical – 8: Program to implement Structure and Union**

1. **Write C program to create, declare and initialize structure.**

#include<stdio.h>

#include<conio.h>

struct student

{

int rollno;

char name[20];

};

struct student s1={15,"Anmol"};

struct student s2={16,"Anshika"};

struct student s3={14,"Anmol"};

void main()

{

printf("\n%d %s\n",s3.rollno,s3.name);

printf("%d %s\n",s1.rollno,s1.name);

printf("%d %s\n",s2.rollno,s2.name);

getch();

}

1. **Write C program to read and print an employee's detail using structure.**

#include<stdio.h>

#include<conio.h>

struct employee

{

int emp\_id;

char name[30];

};

struct employee emp;

void main()

{

printf("Enter employee data\n");

scanf("%d %s",&emp.emp\_id,&emp.name);

printf("\nEmployee Details\n");

printf("%d %s",emp.emp\_id,emp.name);

getch();

}

1. **Write C program to demonstrate example of nested structure.**

#include<stdio.h>

#include<conio.h>

struct student

{

int rollno;

char name[50];

struct marks

{

int m1,m2,m3;

float sum,avg;

}marks;

} s1;

void main()

{

printf("Enter student record\n");

scanf("%d %s %d %d %d",&s1.rollno,&s1.name,&s1.marks.m1,&s1.marks.m2,&s1.marks.m3);

printf("\nStudent data\n%d %s %d %d %d",s1.rollno,s1.name,s1.marks.m1,s1.marks.m2,s1.marks.m3);

s1.marks.sum=s1.marks.m1+s1.marks.m2+s1.marks.m3;

s1.marks.avg=(float) s1.marks.sum/3;

printf("\nSum is %f",s1.marks.sum);

printf("\nAverage is %f ",s1.marks.avg);

getch();

}

1. **Write C program to demonstrate example structure pointer (structure with pointer).**

#include<stdio.h>

#include<conio.h>

struct add

{

int x,y;

};

void main()

{

struct add \*p,p1;

p=&p1;

printf("Enter both value: ");

scanf("%d %d",&p->x,&p->y);

printf("value is is %d %d",p->x,p->y);

getch();

}

1. **Write C program to declare, initialize a union, example of union.**

#include<stdio.h>

#include<conio.h>

union student {

int i;

char str[20];

};

int main( ) {

union student s1;

printf( "Memory size occupied by data : %d\n", sizeof(s1));

return 0;

}

1. **Write C program to demonstrate example of array of structures.**

#include<stdio.h>

#include<conio.h>

struct student

{

int roll;

char name[30];

};

struct student s1[2];

void main()

{

int i;

printf("Enter student data\n");

for(i=0;i<2;i++)

{

scanf("%d %s",&s1[i].roll,&s1[i].name);

}

printf("\nData is\n");

for(i=0;i<2;i++)

{

printf("\nData is \n%d %s\n",s1[i].roll,s1[i].name);

}

getch();

}

1. **Define a structure data type named student containing the following details**

**Name, roll, marks of 3 subjects. Write a program to perform the following tasks**

1. **Calculate the total marks & % of the students**
2. **Display the student details**

#include<stdio.h>

#include<conio.h>

#include<String.h>

struct student

{

char name[30];

int roll;

int m1,m2,m3;

};

struct student s1;

void main()

{

double sum,per;

printf("Enter student name\n");

gets(s1.name);

printf("Enter rollno\n");

scanf("%d",&s1.roll);

printf("Enter three subject marks\n");

scanf("%d %d %d",&s1.m1,&s1.m2,&s1.m3);

sum=s1.m1+s1.m2+s1.m3;

per=(sum\*100)/300;

printf("Student details\n%s %d %d %d %d %lf %lf",s1.name,s1.roll,s1.m1,s1.m2,s1.m3,sum,per);

getch();

}