**Structures-Lab Tasks**

**QUESTION#1**

/\*Task # 1 Create a Structure called employee that contains two members:

an employee number (type int) and the employee's salary (type float). Ask

the user to fill this data for two employees, store it in two variables

of type struct employee, and then display the information for each

employee.\*/

#include<iostream>

using namespace std;

struct employee{

int emp\_no;

float emp\_salry;

};

int main(){

employee e2, e1={1,300.5};

e2.emp\_no=2;

e2.emp\_salry=209.5;

cout<<"Employ no ="<<e1.emp\_no<<'\t'<<"salary ="<<e1.emp\_salry<<endl;

cout<<"Employ no ="<<e2.emp\_no<<'\t'<<"salary ="<<e2.emp\_salry;

return 0;

}

**QUESTION#2**

/\*Task # 2 Create a Structure called Students that contains two members:

student's obtained marks type(int). total marks (type int) Ask the user for obtained marks and total marks, store it in a variable of type struct student, and then display the percentage\*/

#include<iostream>

using namespace std;

struct Students{

int obt\_marks;

int total\_marks;

};

int main(){

Students student;

cout<<"Enter obtain marks:";

cin>>student.obt\_marks;

cout<<"Enter total marks:";

cin>>student.total\_marks;

float percent=(float)student.obt\_marks/student.total\_marks\*100;

cout<<"Percentage of student ="<<percent;

return 0;

}

**QUESTION#3**

/\*Task # 3 Enter the marks of 5 students in Chemistry, Mathematics and

Physics (each out of 100) using a structure named Marks having elements

roll no., name, chem\_marks, maths\_marks and phy\_marks and then display

the percentage of each student\*/

#include<iostream>

using namespace std;

struct Marks{

int roll\_no;

string name;

int chem\_marks;

int maths\_marks;

int phy\_marks;

};

Marks myfunction(int a,string b,int c,int d,int e){

Marks info={a,b,c,d,e};

return info;

}

float percent(Marks info){

int total\_marks=300;

int obt=info.chem\_marks+info.maths\_marks+info.phy\_marks;

float p=(float)obt/total\_marks\*100;

return p;

}

int main(){

int v,x,y,z;

string w;

Marks s1,s2,s3,s4,s5;

v=51,w="Tayyaba",x=75,y=98,z=90;

s1=myfunction(v,w,x,y,z);

float per=percent(s1);

cout<<"Roll no"<<s1.roll\_no<<'\t'<<"Name ="<<s1.name<<endl;

cout<<"Percentage ="<<per<<endl;

v=15,w="Shazma",x=74,y=80,z=88;

s2=myfunction(v,w,x,y,z);

per=percent(s2);

cout<<"Roll no"<<s2.roll\_no<<'\t'<<"Name ="<<s2.name<<endl;

cout<<"Percentage ="<<per<<endl;

v=24,w="Sarwat",x=80,y=78,z=93;

s3=myfunction(v,w,x,y,z);

per=percent(s3);

cout<<"Roll no"<<s3.roll\_no<<'\t'<<"Name ="<<s3.name<<endl;

cout<<"Percentage ="<<per<<endl;

v=03,w="Areej",x=72,y=79,z=95;

s4=myfunction(v,w,x,y,z);

per=percent(s4);

cout<<"Roll no"<<s4.roll\_no<<'\t'<<"Name ="<<s4.name<<endl;

cout<<"Percentage ="<<per<<endl;

v=78,w="Urooshm",x=78,y=99,z=82;

s5=myfunction(v,w,x,y,z);

per=percent(s5);

cout<<"Roll no"<<s5.roll\_no<<'\t'<<"Name ="<<s5.name<<endl;

cout<<"Percentage ="<<per<<endl;

return 0;

}.

**QUESTION#4**

/\*Task # 4 Write a structure to store the name, account number and balance of

two customers .Write a function to print the data of all the customers.\*/

#include<iostream>

using namespace std;

struct Info{

int A\_number;

string name;

int balance;

};

Info myfunction(int a,string b,int c){

Info D={a,b,c};

return D;

}

void print(Info D){

cout<<"customer1 name ="<<D.name<<endl;

cout<<"Customer1 account no ="<<D.A\_number<<endl;

cout<<"Customer1 balance ="<<D.balance<<endl;

}

int main(){

Info c1,c2;

c1=myfunction(53745483,"A.ghani",50000);

print(c1);

c2=myfunction(94644863,"Aisha",45000);

print(c2);

return 0;

}

**Task # 5 Create a structure named "person" with the following fields**

* name (should be string)
* age (should be int)
* do\_programming (should be bool)
* declare two objects "p1" and "p2" of your structure's datatype
* set the values for "p1" as follows:
  + name: alice
  + age: 20
  + do\_programming: true
* set the values for "p2" as follows:
  + name: bob
  + age: 18
  + do\_programming: false
* "cout" their informations in the scheme "name (age)" => e.g. tim (23) by getting the values from your structure-objects

**QUESTION#6**

**Task # 6 Consider given structure Cars. Using this structure represent two cars:**

struct Cars{  
  string brand;  
  string model;  
  int year;  
} myCar1, myCar2; // We can add variables by separating them with a comma here

/\*Task # 6 Consider given structure Cars. Using this structure represent two cars:

struct Cars{

string brand;

string model;

int year;

} myCar1, myCar2; // We can add variables by separating them with a comma

// here\*/

#include<iostream>

using namespace std;

struct Cars{

string brand;

string model;

int year;

} myCar1, myCar2;

int main(){

Cars mycar1={"Mercedes","A-class",2002};

Cars mycar2={"Audi","A3",2023};

cout<<"Old Car :\n"<<"Brand name:"<<mycar1.brand<<'\n'<<"Model name:"<<mycar1.model<<'\n'<<"Year ="<<mycar1.year;

cout<<"\nOld Car :\n"<<"Brand name:"<<mycar2.brand<<'\n'<<"Model name:"<<mycar2.model<<'\n'<<"Year ="<<mycar2.year;

return 0;

}

**QUESTION#7**

/\*Task # 7 Write a C++ program that demonstrates the working and use of

Nested Structures.\*/

#include<iostream>

using namespace std;

struct book{

string name;

string author;

};

struct categray{

book grammer;

book Ethics;

};

int main(){

categray B;

B.grammer={{"Manage to lead"},{"Cynthia"}};

B.Ethics={{"Learn to teach"},{"Rose pattle"}};

cout<<"Author name ="<<B.grammer.author<<endl;

cout<<"Book name ="<<B.grammer.name<<endl;

cout<<"Author name ="<<B.Ethics.author<<endl;

cout<<"Book name ="<<B.Ethics.name<<endl;

return 0;

}