**Structure**

**Q1 - Create a structure student (roll number, name, marks of 3 subjects, percentage).**

**Accept details of n students and write a menu driven program to perform the following operations. Write separate functions for the different options.**

**i) Search**

**ii) Modify**

**iii) Display all student details**

**iv) Display all student having percentage > 80**

**v) Display student having maximum percentage**

#include<stdio.h>

#include<string.h>

struct student

{

int roll\_no,mark,fileo,proc;

char name[20];

float percent;

};

void Search(struct student S[],int size);

void Modify(struct student S[],int size,int roll\_no);

void DisplayAll(struct student S[],int size);

void PercentGT(struct student S[],float checkPercent,int size);

void MaxPercent(struct student S[],int size);

void main()

{

struct student S[200];

int i,roll\_no,size,ope;

float checkPercent;

printf("\n How many students are there:- ");

scanf(" %d",&size);

printf("\n Enter the information of students as follow:- \n \n");

printf("\n Roll No\t Name \t Maths \t File Organisation \t Programming In C \n \n");

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

{

scanf(" %d %s %d %d %d",&S[i].roll\_no,S[i].name,&S[i].mark,&S[i].fileo,&S[i].proc);

S[i].percent=(S[i].mark+S[i].fileo+S[i].proc)/3;

}

do{

printf("\n \t \*\*\*\*\* Menu \*\*\*\*\*");

printf("\n 1.Search");

printf("\n 2.Modify");

printf("\n 3.Display all student details");

printf("\n 4.Display all students having percentage greater than \_\_\_");

printf("\n 5.Display student having maximum percentage");

printf("\n 6.Exit \n \n");

printf("\n Enter Your Choice:- ");

scanf(" %d",&ope);

switch(ope)

{

case 1:

Search(S,size);

break;

case 2:

printf("\n Enter roll no to modify the details:- ");

scanf(" %d",&roll\_no);

Modify(S,size,roll\_no);

break;

case 3:

DisplayAll(S,size);

break;

case 4:

printf("\n Enter percentage:- ");

scanf("%f",&checkPercent);

PercentGT(S,checkPercent,size);

break;

case 5:

MaxPercent(S,size);

break;

}}while(ope!=6);

}

void Search(struct student S[],int size)

{

char name[20];

int i,flg=0,roll\_no,searchBy;

do{

printf("\n How do you want to search:- 1.By Roll No \n \t\t\t 2.By Name \n");

scanf(" %d",&searchBy);

if(searchBy==1)

{

printf("\n Enter roll no of the student:- ");

scanf(" %d",&roll\_no);

}

else

{

printf("\n Enter the name of the student:- ");

scanf(" %s",name);

}}while(searchBy<1 || searchBy>2);

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

{

if(S[i].roll\_no==roll\_no || strcmp(S[i].name,name)==0)

{

flg=1;

break;

}

}

if(flg==1)

{

printf("\n We have found this result:- \n ");

printf("\n Roll No\t Name \t Mathematics \t File Organisation \t Programming In C \t Percentage \n \n");

printf("\n %d \t\t %s \t %6d \t\t %1d \t\t %8d \t\t %f \n",S[i].roll\_no,S[i].name,S[i].mark,S[i].fileo,S[i].proc,S[i].percent);

}

else

printf("\n We haven't found any record \n \n");

}

// Modify Function

void Modify(struct student S[],int size,int roll\_no)

{

char name[20];

int i,update,newData;

do{

printf("\n What do you want to update:- 1.Roll NO \n \t\t\t 2.Name \n \t\t\t 3.Marks of 'Mathematics' \n \t\t\t 4.Marks of 'File Organisation' \n \t\t\t 5.Marks of 'Programming in C' \n");

scanf(" %d",&update);

if(update==3 || update==4 || update==5)

{

printf("\n Enter new marks:- ");

scanf("%d",&newData);

}

else if(update==1)

{

printf("\n Enter new roll no:- ");

scanf(" %d",&newData);

}

else if(update==2)

{

printf("\n Enter new name:- ");

scanf(" %s",name);

}

else

{

printf("\n Please make a valid choice \n \n");

}

}while(update<1 || update>5);

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

{

if(S[i].roll\_no==roll\_no)

{

if(update==1)

{

S[i].roll\_no=newData;

break;

}

else if(update==3)

{

S[i].mark=newData;

break;

}

else if(update==4)

{

S[i].fileo=newData;

break;

}

else if(update==5)

{

S[i].proc=newData;

break;

}

else

{

strcpy(S[i].name,name);

break;

}

}

}

printf("\n Modified details of students are as follows:- \n");

printf("\n Roll No\t Name \t Mathematics \t File Organisation \t Programming In C \t Percentage \n \n");

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

{

printf("\n %d \t\t %s \t %6d \t\t %1d \t\t %8d \t\t %f \n",S[i].roll\_no,S[i].name,S[i].mark,S[i].fileo,S[i].proc,S[i].percent);

}

}

// DisplayAll Function

void DisplayAll(struct student S[200],int size)

{

int i;

printf("\n The Information of students is as follow:- \n \n");

printf("\n Roll No\t Name \t Mathematics \t File Organisation \t Programming In C \t Percentage \n \n");

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

printf("\n %d \t\t %s \t %6d \t\t %1d \t\t %8d \t\t %f \n",S[i].roll\_no,S[i].name,S[i].mark,S[i].fileo,S[i].proc,S[i].percent);

}

// PercentGT Function

void PercentGT(struct student S[],float checkPercent,int size)

{

int i;

printf("\n The Information of students who scored percentage>%f :- \n \n",checkPercent);

printf("\n Roll No\t Name \t Mathematics \t File Organisation \t Programming In C \t Percentage \n \n");

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

{

if(S[i].percent>checkPercent)

{

printf("\n %d \t\t %s \t %6d \t\t %1d \t\t %8d \t\t %f \n",S[i].roll\_no,S[i].name,S[i].mark,S[i].fileo,S[i].proc,S[i].percent);

}

}

}

// MaxPercent Function

void MaxPercent(struct student S[200],int size)

{

int i;

float maxPercent=S[0].percent;

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

if(S[i].percent>maxPercent)

{

maxPercent=S[i].percent;

break;

}

printf("\n \"%s\" scored maximum percentage. Below are his details:- - \n ",S[i].name);

printf("\n Roll No\t Name \t Mathematics \t File Organisation \t Programming In C \t Percentage \n \n");

printf("\n %d \t\t %s \t %6d \t\t %1d \t\t %8d \t\t %f \n",S[i].roll\_no,S[i].name,S[i].mark,S[i].fileo,S[i].proc,S[i].percent);

}

**Output**

How many students are there:- 3

Enter the information of students as follow:-

Roll No Name Maths File Organisation Programming In C

1 A 1 2 3

2 B 4 5 6

3 C 7 8 9

\*\*\*\*\* Menu \*\*\*\*\*

1.Search

2.Modify

3.Display all student details

4.Display all students having percentage greater than \_\_\_

5.Display student having maximum percentage

6.Exit

Enter Your Choice:- 1

How do you want to search:- 1.By Roll No

2.By Name

1

Enter roll no of the student:- 1

We have found this result:-

Roll No Name Mathematics File Organisation Programming In C Percentage

1 A 1 2 3 2.000000

\*\*\*\*\* Menu \*\*\*\*\*

1.Search

2.Modify

3.Display all student details

4.Display all students having percentage greater than \_\_\_

5.Display student having maximum percentage

6.Exit

Enter Your Choice:-

**Q2 -Create a structure employee (id, name, salary). Accept details of n employees and write a menu driven program to perform the following operations. Write separate functions for the different options.**

**i) Search by name**

**ii) Search by id**

**iii) Display all**

**iv) Display all employees having salary > 25000**

**v) Display employee having maximum**

#include<stdio.h>

#include<string.h>

struct employee

{

int id, salary;

char name[20];

};

void main()

{

struct employee S[200];

int i,id,size,ope,checksalary;

printf("\n How many employee are there:- ");

scanf(" %d",&size);

printf("\n Enter the information of employee as follow:- \n \n");

printf("\n ID\t Name \t Salary \n \n");

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

{

scanf(" %d %s %d ",&S[i].id,S[i].name,&S[i].salary);

}

do{

printf("\n \t \*\*\*\*\* Menu \*\*\*\*\*");

printf("\n 1.Search by Name");

printf("\n 2.Search by ID");

printf("\n 3.Display all");

printf("\n 4.Display all employee having salary more than 25000");

printf("\n 5.Display employee having maximum salary");

printf("\n 6.Exit \n \n");

printf("\n Enter Your Choice:- ");

scanf(" %d",&ope);

switch(ope)

{

case 1:

Searchbyname(S,size);

break;

case 2:

SearchbyID(S,size);

break;

case 3:

DisplayAll(S,size);

break;

case 4:

printf("\n salary:- ");

scanf("%f",&checksalary);

salaryGT(S,checksalary,size);

break;

case 5:

MaxSalary(S,size);

break;

}}while(ope!=6);

}

void Searchbyname(struct employee S[],int size)

{

char name[20];

int i,flg=0;

printf("\n Enter the name of the employee:- ");

scanf(" %s",name);

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

{

if(strcmp(S[i].name,name)==0)

{

flg=1;

break;

}

}

if(flg==1)

{

printf("\n We have found this result:- \n ");

printf("\n ID \t Name \t Salary \n \n");

printf("\n %d \t\t %s \t %6d \t\t",S[i].id,S[i].name,S[i].salary);

}

else

printf("\n We haven't found any record \n \n");

}

void SearchbyID(struct employee S[],int size)

{

char name[20],flag=0;

int i,id,searchBy;

printf("\n Enter roll no of the employee:- ");

scanf(" %d",&id);

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

{

if(S[i].id==id)

{

flag=1;

break;

}

}

if(flag==1)

{

printf("\n We have found this result:- \n ");

printf("\n ID\t Name \t Salary \t ");

printf("\n %d \t\t %s \t %6d ",S[i].id,S[i].name,S[i].salary);

}

else

printf("\n We haven't found any record \n \n");

}

void DisplayAll(struct employee S[200],int size)

{

int i;

printf("\n The Information of employee is as follow:- \n \n");

printf("\n ID \t Name \t Salary \t \n \n");

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

printf("\n %d \t\t %s \t %6d \t\t ",S[i].id,S[i].name,S[i].salary);

}

// salary GT Function

void salaryGT(struct employee S[],int checksalary,int size)

{

int i;

printf("\n The Information of employee who scored percentage>%f :- \n \n",checksalary);

printf("\n ID\t Name \t salary \n \n");

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

{

if(S[i].salary>checksalary)

{

printf("\n %d \t\t %s \t %6d \t\t ",S[i].id,S[i].name,S[i].salary);

}

}

}

// MaxSalary Function

void MaxSalary(struct employee S[200],int size)

{

int i;

int maxSalary=S[0].salary;

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

if(S[i].salary>maxSalary)

{

maxSalary=S[i].salary;

break;

}

printf("\n \"%s\" scored maximum salary. Below are his details:- - \n ",S[i].name);

printf("\n ID\t Name \t Salary \t ");

printf("\n %d \t\t %s \t %6d \t\t ",S[i].id,S[i].name,S[i].salary);

}

**Output**

How many employee are there:- 3

Enter the information of employee as follow:-

ID Name Salary

1 M 25000

2 N 35000

3 P 45000

\*\*\*\*\* Menu \*\*\*\*\*

1.Search by Name

2.Search by ID

3.Display all

4.Display all employee having salary more than 25000

5.Display employee having maximum salary

6.Exit

Enter Your Choice:-

**Q3 - The following structure is for a library book with the following details:**

**id, title, publisher, code (1 – Text book, 2 – Magazine, 3 – Reference book). If the code is 1,**

**store no-of-copies. If code = 2, store the issue month name. If code = 3, store edition number. Also store the cost.**

**struct library\_book**

#include <stdio.h>

#include<stdlib.h>

struct library\_book

{

int id;

char title[80];

char publisher[20];

union u

{

int no\_of\_copies;

char month[10];

int edition;

} info;

int cost;

};

int main()

{

struct library\_book b[200];

int code, n, i;

do

{

printf(".....MENU.....\n");

printf("Please Enter the code of book \n");

printf("1 - Text Book \n");

printf("2 - Magazine \n");

printf("3 - Reference Book \n");

printf("4 - Exit\n");

printf("..............\n");

scanf("%d", &code);

switch (code)

{

case 1:

printf("How Many Books are there:\n");

scanf("%d", &n);

printf("Enter the details of book :\n");

printf("ID\t TITLE in Character \t PUBLISHER in Character \t NUMBER OF COPIES\t COST\t \n");

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

{

scanf("%d %s %s %d %d", &b[i].id, b[i].title, b[i].publisher, &b[i].info.no\_of\_copies, &b[i].cost);

}

printf("Details found of books:\n");

printf("ID\t TITLE in Character \t PUBLISHER in Character \t NUMBER OF COPIES\t COST\t \n");

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

{

printf("%d %21s %21s %30d %15d\n", b[i].id, b[i].title, b[i].publisher, b[i].info.no\_of\_copies, b[i].cost);

}

break;

case 2:

printf("How many book are there:\n");

scanf("%d", &n);

printf("Enter the details of book :\n");

printf("ID\t TITLE in Character\t PUBLISHER in Character\t MONTH NAME in Character \t COST\t \n");

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

{

scanf("%d %s %s %s %d", &b[i].id, b[i].title, b[i].publisher, b[i].info.month, &b[i].cost);

}

printf("Details of books :\n");

printf("ID\t TITLE in Character \t PUBLISHER in Character \t MONTH NAME in Character \t COST\t \n");

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

{

printf("%d %8s %23s %31s %31d\n", b[i].id, b[i].title, b[i].publisher, b[i].info.month, b[i].cost);

}

break;

case 3:

printf("How many books are there: \n");

scanf("%d", &n);

printf("Enter the details of book :\n");

printf("ID\t TITLE in Character\t PUBLISHER in Character\t EDITION NUMBER \t COST\t \n");

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

{

scanf("%d %s %s %d %d", &b[i].id, b[i].title, b[i].publisher, &b[i].info.edition, &b[i].cost);

}

printf("Enter the details of book :\n");

printf("ID\t TITLE in Character \t PUBLISHER in Character \t EDITION NUMBER \t COST\t \n");

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

{

printf("%d %7s %28s %35d %35d\n", b[i].id, b[i].title, b[i].publisher, b[i].info.edition, b[i].cost);

}

break;

case 4:

exit(1);

break;

default:

printf("Enter the correct details ");

}

} while (code != 4);

return 0;

}

**Output**

.....MENU.....

Please Enter the code of book

1 - Text Book

2 - Magazine

3 - Reference Book

4 - Exit

..............

3

How many books are there: 1

Enter the details of book :

ID TITLE in Character PUBLISHER in Character EDITION NUMBER COST

1 Mahi KOLHE 1 65

Enter the details of book :

ID TITLE in Character PUBLISHER in Character EDITION NUMBER COST

1 MAhi KOLHE 1 65

.....MENU.....

Please Enter the code of book

1 - Text Book

2 - Magazine

3 - Reference Book

4 - Exit

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