**Lab 11 Structures And Functions**

/\*1. Write a C program which can input some rivers name, length and country of origin. Display the name of the longest river. /\*

**Answer 1.**

#include<stdio.h>

int main()

{

struct rivers\_info{

int length;

char name[30];

char origin[100];

};

int n;

printf("Enter the rivers\_info what do you want : ");

scanf("%d",&n);

struct rivers\_info x[n];

int i,max,p;

printf("Enter the length,name and the origin of the rivers:\n");

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

{

scanf("%d",&x[i].length);

scanf("%s",x[i].name);

scanf("%s",x[i].origin);

}

max=x[0].name;

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

{

if(x[i].name>max)

{

max=x[i].name;

p=i;

}

}

printf("The name of the longest river's is %s ",x[p].name);

}

**Answer 2.**

/\*2. Write a C program which can input some book’s name, author’s name, pages, prices. Display the book’s information which’s name containing the highest number of vowels.\*/

#include<stdio.h>

int main(){

struct bookinfo{

char name[100],author[100];

int page,price;

};

struct bookinfo x[20];

int i,j,n1,m,t,c;

printf("Enter array size:");

scanf("%d",&n1);

printf("Enter the Name, Author, Page and price of Books:\n");

for(i=0;i<n1;i++){

scanf("%s",x[i].name);

scanf("%s",x[i].author);

scanf("%d",&x[i].page);

scanf("%d",&x[i].price);

}

m=0;

for(i=0;i<n1;i++){

c=0;

for(j=0;x[i].name[j]!='\0';j++){

if(x[i].name[j]=='a'||x[i].name[j]=='e'||x[i].name[j]=='i'||x[i].name[j]=='o'||x[i].name[j]=='u'||x[i].name[j]=='A'||x[i].name[j]=='E' ||x[i].name[j]=='I'||x[i].name[j]=='O'||x[i].name[j]=='U'){

c++;

}

if(c>m){

m=c;

t=i;

}

}

}

printf("%s containing the highest number of vowels",x[t].name);

}

**Answer 3.**

/\*3. Write a C program which can input some fruits name, price, typical lowest wight, typical highest wight. Display all the fruits information which’s name start with a vowel.\*/

#include<stdio.h>

int main(){

struct bookinfo{

char name[100];

int price, typicallowest,typicalhighest;

};

struct bookinfo x[20];

int i,j,n1,m,t,c;

printf("Enter array size:");

scanf("%d",&n1);

printf("Enter the Name, Price, typicallowest and typicalhighest of fruits:\n");

for(i=0;i<n1;i++){

scanf("%s",x[i].name);

scanf("%d",&x[i].price);

scanf("%d",&x[i].typicallowest);

scanf("%d",&x[i].typicalhighest);

}

for(i=0;i<n1;i++){

if(x[i].name[0]=='a'||x[i].name[0]=='e'||x[i].name[0]=='i'||x[i].name[0]=='o'||x[i].name[0]=='u'||x[i].name[0]=='A'||x[i].name[0]=='E' ||x[i].name[0]=='I'||x[i].name[0]=='O'||x[i].name[0]=='U'){

t=i;

printf("%s\n",x[i].name);

printf("%d\n",x[i].price);

printf("%d\n",x[i].typicallowest);

printf("%d\n",x[i].typicalhighest);

}

}

}

**Answer 4.**

/\*4. Write a C program which can input last 7 days temperature of two different cities. Display the highest temperature of each city. [Use appropriate user defined function]\*/

#include<stdio.h>

int max(int \*x){int i,s;

s=x[0];

for(i=0;i<7;i++){

if(x[i]>s){

s=x[i];

}

}

return s;}

int main(){ int i,z=0,s=0;

int x[7],y[7];

printf("1ST CITY TEMP:");

for(i=0;i<7;i++){

scanf("%d",&x[i]);

}

printf("2ND CITY TEMP:");

for(i=0;i<7;i++){

scanf("%d",&y[i]);

}

z=max(x);

s=max(y);

printf("1ST CITY HIGH TEM:%d \n 2ND CIT HIGH TEMP:%d",z,s);}

**Answer 5.**

/\*5. Write a C program which can input last 7 days temperature of two different cities. Display highest temperature found in first city or in the second city. [Use appropriate user defined function]\*/

#include<stdio.h>

int Findmax(int \*a){

int i,m;

for(i=0;i<7;i++){

if(a[i]>m){

m=a[i];

}

}

return m;

}

int main(){

int i,city1[7],city2[7],ans1,ans2,m;

m=0;

printf("Enter temperature of two city:");

for(i=0;i<7;i++){

scanf("%d%d",&city1[i],&city2[i]);

}

ans1=Findmax(city1);

ans2=Findmax(city2);

if(ans1>ans2){

printf("Highest temp found in first city");

}

else{

printf("Highest temp found in second city");

}

}

**Answer 6.**

/\*6. Write a C program which can input last 7 days temperature of two different cities. Display difference between highest and average temperature each city. Display difference between lowest and average temperature each city. Display difference between highest and lowest temperature each city.[Use appropriate user defined function]\*/

#include<stdio.h>

#include<math.h>

int Findmax(int \*a){

int i,m;

for(i=0;i<7;i++){

if(a[i]>m){

m=a[i];

}

}

return m;

}

int Findavg(int \*a){

int i,s;

float avg;

s=0;

for(i=0;i<7;i++){

s=s+a[i];

}

avg=s/7.0;

return avg;

}

int Findmin(int \*a){

int i,min;

min=a[0];

for(i=0;i<7;i++){

if(a[i]<min){

min=a[i];

}

}

return min;

}

int main(){

int i,city1[7],city2[7],ans1,ans2,ans3,ans4,ans5,ans6,m,n5,n6,min;

float n1,n2,n3,n4,n7,n8;

printf("Enter temperature of two city:\n");

for(i=0;i<7;i++){

scanf("%d%d",&city1[i],&city2[i]);

}

ans1=Findmax(city1);

ans2=Findmax(city2);

ans3=Findavg(city1);

ans4=Findavg(city2);

ans5=Findmin(city1);

ans6=Findmin(city2);

n1=ans1-(float)ans3;

n2=ans2-(float)ans4;

n3=ans5-(float)ans3;

n7=abs(n3);

n4=ans6-(float)ans4;

n8=abs(n4);

n5=ans1-ans5;

n6=ans2-ans6;

printf("Difference between Highest and avarage temp of first city is %.2f\n",n1);

printf("Difference between Highest and avarage temp of second city is %f.2\n",n2);

printf("Difference between Lowest and avarage temp of first city is %.2f\n",n7);

printf("Difference between Lowest and avarage temp of second city is %.2f\n",n8);

printf("Difference between Highest and lowest temp of first city is %d.2\n",n5);

printf("Difference between Highest and lowest temp of second city is %d.2\n",n6);

}