[Ravi Patel] Instructor: Dr. Hindo

[CPSC 230]

Chapter 7 - lab assignment

(15 points)

Due date: End of this class

Note:

Save your document file as your lastname\_firstname

Submit your assignment in the inbox (chapter 7 assignment part 1).

Write your code and output for each program.

**Q1- What is the output**

int array[10]={0};

array[0]=10;

int i=1;

while (i< 10)

{ array[i] +=array[i-1] +2; //what is this statement doing?

cout <<array[i];

i++;

}

OUTPUT:

**121416182022242628**

//array[i] +=array[i-1] +2; //what is this statement doing?

This statement is assigning array[i] to array[i] plus array[i-1] plus 2. For example, since we set array[0] to 10, the first assignment is 10, then we add 2 to get 12. In the next iteration, Array[0] == 12, and we add 2 to it again to get array[1] == 14, and it keeps going until int i == 9

**Q2- Write a function to find the difference of two consecutive values in array ‘a’. Write the following functions (this is the formal way to write programs).**

**void introduction() ; // to display a text to tell what is the program about**

**bool keepRunning(); // to ask the user for more times to run the program**

**void runProgram(); // to input an array, call difference function and print the**

**result**

**void difference ( ) //diff is an array that saves the difference values**

#include <iostream>

//CPSC 230 RAVI PATEL DIFFERENCE USING ARRAY

using namespace std;

void introduction();

void newline();

void runProgram();

void display();

void difference();

void keepRunning();

//int a[10] = {0, 1, 10, 20, 30, 100, 50, 30, 80};

int diff[10];

double a[10];

int main() {

introduction();

newline();

runProgram();

newline();

display();

newline();

difference();

keepRunning();

newline();

}

void introduction(){

cout<<"This program will allow you to find the difference of two consecutive values in an array."<<endl;

}

void newline() {

int n;

for (n = 0; n < 1; n++)

printf("\n");

}

void runProgram(){

for (int j = 0; j < 10; j++){

cout<<"Enter a number for the array: ";

cin>>a[j];

}

}

void display(){

cout<<"a[10]"<<endl;

for (int i = 0; i<10; i++){

cout<<a[i]<<endl;

}

}

void difference(){

cout<<"diff[10]"<<endl;

for (int i = 0; i < 9; i++)

{

diff[i] = a[i + 1] - a[i];

cout<<diff[i]<<endl;

}

}

void keepRunning(){

char ch;

cout<<"Enter 'y' to continue the program: ";

cin>>ch;

while (ch == 'y' || ch == 'Y')

{

main();

}

exit(0);

}

**Sample Output:**

**This program will allow you to find the difference of two consecutive values in an array.**

**Enter a number for the array: 0**

**Enter a number for the array: 1**

**Enter a number for the array: 10**

**Enter a number for the array: 20**

**Enter a number for the array: 30**

**Enter a number for the array: 100**

**Enter a number for the array: 50**

**Enter a number for the array: 30**

**Enter a number for the array: 80**

**Enter a number for the array: 90**

**a[10]**

**0**

**1**

**10**

**20**

**30**

**100**

**50**

**30**

**80**

**90**

**diff[10]**

**1**

**9**

**10**

**10**

**70**

**-50**

**-20**

**50**

**10**

**Enter 'y' to continue the program: y**

**This program will allow you to find the difference of two consecutive values in an array.**

**Enter a number for the array: 0**

**Enter a number for the array: 2**

**Enter a number for the array: 20**

**Enter a number for the array: 30**

**Enter a number for the array: 40**

**Enter a number for the array: 50**

**Enter a number for the array: 70**

**Enter a number for the array: 90**

**Enter a number for the array: 110**

**Enter a number for the array: 20**

**a[10]**

**0**

**2**

**20**

**30**

**40**

**50**

**70**

**90**

**110**

**20**

**diff[10]**

**2**

**18**

**10**

**10**

**10**

**20**

**20**

**20**

**-90**

**Enter 'y' to continue the program: n**

**Example of the output**

|  |  |
| --- | --- |
| **a[10]**  **1**  **10**  **20**  **30**  **100**  **50**  **30**  **80** | **diff[10]**  **0**  **9**  **10**  **10**  **70**  **-50**  **-20**  **50** |

**Q3- Roll a six-sided die 60000 times. Then show the output frequency elements 1-6 in tabular format. Use the following**

**srand( time( 0 ) ); // seed random-number generator**

**face =1 + rand() % 6 ; // generate rand face from 1:6**

**Hint: use array B[face] to generate six items and save the number of “face” occurrence (i.e. B[1], B[2], B[3] …..) Then print the output as following:**

**Face Frequency**

**1 10030**

**2 10040**

**3 9990**

**4 9800**

**5 10130**

**6 10010**

//CPSC 230 RAVI PATEL ASSIGNMENT 7 Q3DICE ROLLER

#include <iostream>

using namespace std;

int main(int argc, char \*argv[]) {

float six = 0, five = 0, four = 0, three = 0, two = 0, one = 0;

int face;

int i = 60000;

srand (time(0)); //initialized all vars

do {

face = (rand()%6) + 1; //roll dice and set result to face

if (face == 6) //if face == 6

six++; //add 1 to six counter

if (face == 5)

five++;

if (face == 4)

four++;

if (face == 3)

three++;

if (face == 2)

two++;

if (face == 1)

one++;

--i; //go down iterations from 60000 until 0

}

while (i>0);

int B[6] = {one, two, three, four, five, six};

cout<<"Face"<<"\t"<<"Frequency"<<endl;

for (int k = 1; k<7; k++)

{

cout<<k<<"\t"<<B[k-1]<<endl;

}

}

**OUTPUT:**

**Face Frequency**

**1 9935**

**2 10016**

**3 10070**

**4 10170**

**5 9890**

**6 9919**