Question 1

/\*

Name: Eranus Thompson

\*/

#include <iostream>

#include <iomanip>

using namespace std;

template <class T>

T maxfunc(T arr[], int size) {

T max = arr[0];

int j = 0;

for (int i = 1; i < size; i++) {

if (max < arr[i]) {

max = arr[i];

}

}

return max;

}

int main() {

int size = 5;

int arr1[] = { 4, 1, 13, 3, 2 };

double arr2[] = { 1.1, 4.1, 8.1, 5.2, 2.3 };

string strWord[] = { "the", "student", "is", "in", "class" };

cout << "The max value in arr1 is: " << maxfunc(arr1, size)

<< endl;

cout << "The max value in arr2 is: " << maxfunc(arr2, size)

<< endl;

cout << "The max value in string Word is: " << maxfunc(strWord, size)

<< endl;

}



Test Plan

|  |  |  |  |
| --- | --- | --- | --- |
| Purpose | Input | Expected Output | Actual Output |
| Maximum integer in array | 4, 1, 13, 3, 2 | 13 | 13 |
| Maximum double in array | 1.1, 4.1, 8.1, 5.2, 2.3 | 8.1 | 8.1 |
| Maximum string in alphabetic order | “the”, “student”, “is”, “in”, “class” | the | the |

Question 2

Part A

#include <iostream>

#include <iomanip>

using namespace std;

class A {

public:

A() {

valueA = 0;

}

A(const A &rhs) {

this->valueA = rhs.valueA;

}

int getValueA() const {

return valueA;

}

void setValueA(int x) {

valueA = x;

}

private:

int valueA;

};

class B : public A {

public:

B() {

valueB = 0;

}

B(const B &rhs) {

this->valueB = rhs.getValueB();

}

int getValueB() const {

return valueB;

}

void setValueB(int x) {

valueB = x;

}

private:

int valueB;

};

int main() {

A valOne;

B valTwo;

valOne.setValueA(5);

valTwo.setValueB(10);

A valThree(valOne);

B valFour(valTwo);

cout << "In class A: Value1 = " << valOne.getValueA()

<< endl;

cout << "In class B: Value2 = " << valTwo.getValueB()

<< endl;

cout << "In class A: Value3 = " << valThree.getValueA()

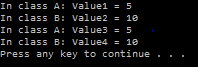
<< endl;

cout << "In class B: Value4 = " << valFour.getValueB()

<< endl;

return 0;

}



|  |  |  |  |
| --- | --- | --- | --- |
| Test Case | Input | Expected Output | Actual Output |
| 1 | 5 | Value 1 = 5 | Value 1 = 5 |
| 2 | 10 | Value 2 = 10 | Value 2 = 10 |
| 3 | 5 | Value 3 = 5 | Value 3 = 5 |
| 4 | 10 | Value 4 = 10 | Value 4 = 10 |

Part B:

/\*

Name: Eranus Thompson

\*/

#include <iostream>

#include <iomanip>

#include <string>

using namespace std;

struct Date {

int day;

int month;

int year;

Date(int d = 0, int mth = 0, int yr = 0) {

day = d;

month = mth;

year = yr;

}

};

template <class T>

class A {

public:

A() {

//valueA = 0;

}

A(const A<T> &rhs) {

this->valueA = rhs.valueA;

}

T getValueA() const {

return valueA;

}

void setValueA(T x) {

valueA = x;

}

//template <class T>

void print() {

cout << "In Class A: Value A = "

<< valueA << endl;

}

private:

T valueA;

};

ostream& operator << (ostream& out, const Date& rhs) {

out << rhs.day << "-" << rhs.month << "-"

<< rhs.year;

return out;

}

template <class T>

class B : public A<T> {

public:

B() {

//valueB = 0;

}

B(const B<T> &rhs) {

this->valueB = rhs.getValueB();

}

T getValueB() const {

return valueB;

}

void setValueB(T x, T y) {

setValueA(x);

valueB = y;

}

//template <class T>

void print() {

A::print();

cout << "In Class B: Value B = "

<< valueB << endl;

}

private:

T valueB;

};

int main() {

B <float> valOne;

valOne.setValueB(1.34, 3.14);

valOne.print();

cout << endl;

B <int> valThree;

valThree.setValueB(1, 3);

valThree.print();

cout << endl;

B <char> charOne;

charOne.setValueB('a', 'c');

charOne.print();

cout << endl;

B <string> strOne;

strOne.setValueB("good", "morning");

strOne.print();

cout << endl;

B <Date> shwDate;

Date nowA(27, 10, 2014);

Date nowB(27, 11, 2014);

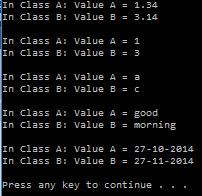
shwDate.setValueB(nowA, nowB);

shwDate.print();

cout << endl;

return 0;

}



|  |  |  |  |
| --- | --- | --- | --- |
| Purpose | Input | Expected Output | Actual Output |
| Print Float | Value A = 1.34  Value B = 3.14 | Value A = 1.34  Value B = 3.14 | Value A = 1.34  Value B = 3.14 |
| Print Integer | Value A = 1  Value B = 3 | Value A = 1  Value B = 3 | Value A = 1.34  Value B = 3.14 |
| Print Char | Value A = a  Value B = c | Value A = a  Value B = c | Value A = a  Value B = c |
| Print String | Value A = good  Value B = morning | Value A = good  Value B = morning | Value A = good  Value B = morning |
| Print Date | Value A = 27,10,2014  Value B = 27,11,2014 | Value A = 27-10-2014  Value B = 27-11-2014 | Value A = 27-10-2014  Value B = 27-11-2014 |