**Question 1**

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//Question 1

#include <iostream>

#include <cmath>

using namespace std;

class Root

{

private:

//attributes

double Xcoordinates, Ycoordinates, Radius, Angle;

public:

//construct

Root(double x, double y) {

Xcoordinates = x;

Ycoordinates = y;

FindRoot(Xcoordinates, Ycoordinates);

FindTan(Xcoordinates, Ycoordinates);

}

void FindRoot(double x, double y) {

Radius = sqrt(x\*x + y\*y);

}

void FindTan(double x, double y) {

Angle = atan(y / x);

}

//methods

double getX() {

return Xcoordinates;

}

double getY() {

return Ycoordinates;

}

double getRoot() {

return Radius;

}

double getAngle() {

return Angle;

}

};

int main()

{

double xIn, yIn;

cout << "Etner x coordinate: ";

cin >> xIn;

cout << "Enter y coordinate: ";

cin >> yIn;

Root Class(xIn, yIn);

cout << "Radius: " << Class.getRoot() << " in coordinate x: " << Class.getX() << " in coordinate y: " << Class.getY() << endl;

cout << "Angle: " << Class.getAngle() << " in coordinate x: " << Class.getX() << " in coordinate y: " << Class.getY() << endl;

return 0;

}

**Question 2**

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//Question 2

#include <iostream>

#include <vector>

#include <ostream>

using namespace std;

struct BigArray {

int MyArray;

};

vector<BigArray> Array;

void resize();

int main()

{

BigArray Fill;

for (int i = 0; i < 25; i++) {

Fill.MyArray = i;

Array.push\_back(Fill);

}

resize();

return 0;

}

void resize() {

BigArray Fill;

int\* pointer = NULL;

int n = 50;

pointer = new int[n];

for (int i = 0; i < 25; i++) {

pointer[i] = Array[i].MyArray;

}

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

Fill.MyArray = pointer[i];

Array.push\_back(Fill);

}

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

cout << Array[i].MyArray << endl;

}

}

**Question 3**

//Aleksandr Gryzlov

//03.09.2022

//Question 3

#include <iostream>

#include <string>

using namespace std;

class Work {

private:

string lastName;

string firstName;

int id;

string department;

string position;

int salary;

public:

Work() {

lastName = " ";

firstName = " ";

id = 0;

department = " ";

position = " ";

salary = 0;

}

Work(string last, string first, int number, string place, string pos, int money) {

lastName = last;

firstName = first;

id = number;

department = place;

position = pos;

salary = money;

}

string getLast() {

return lastName;

}

string getFirst() {

return firstName;

}

int getID() {

return id;

}

string getDep() {

return department;

}

string getPosition() {

return position;

}

int getSalary() {

return salary;

}

};

int main()

{

Work print1("Susan", "Meyers", 478999, "Accounting", "Vice President", 100250);

Work print2("Norman", "Bates", 39119, "IT", "Programmer", 80000);

Work print3("Millard", "Fillmore", 00013, "C - Suite", "President", 999999);

cout << print1.getLast() << " " << print1.getFirst() << ", " << print1.getID() << ", " << print1.getDep() << ", " << print1.getPosition() << ", " << print1.getSalary() << endl;

cout << print2.getLast() << " " << print2.getFirst() << ", " << print2.getID() << ", " << print2.getDep() << ", " << print2.getPosition() << ", " << print2.getSalary() << endl;

cout << print3.getLast() << " " << print3.getFirst() << ", " << print3.getID() << ", " << print3.getDep() << ", " << print3.getPosition() << ", " << print3.getSalary() << endl;

return 0;

}