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SCSJ 1023: Technique Programming II

Mid Term Exam

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**Part A : Structure Question**

**Question 1**

1. #include <fstream>
2. #include <string>
3. #include <stdlib.h>
4. char name[31]; char ic[12]; char stateName[20];
5. ofstream out;
6. out.open("outfile.txt");
7. out.fail()
8. int i = 0; i < numOfEmployee; i++
9. cin.getline(name,31);
10. cin >> ic;
11. out.close();
12. ifstream in; in.open("outfile.txt");
13. !in.eof()
14. in >> ic;
15. in >> stateName;
16. in >> monthlyIncome;
17. year[0] = ic[0]; year[1] = ic[1];
18. month[0] = ic[2]; month[1] = ic[3];
19. day[0] = ic[4]; day[1] = ic[5];

**Question 2**

1. inputFile.fail()
2. while (inputFile>>studList[count].name){

readStudent(inputFile,studList[count])

count = count + 1;

}

1. openOutBinFile("output1.bin", outputFile1);

openOutBinFile("output2.bin", outputFile2);

1. for (int count = 0; count < 50; count++)

writeStudent(outputFile1, studList[count]);

1. outputFile2.write(outputFile1)
2. txtFile.read(reinterpret\_cast<char\*>(&stud),sizeof(Student));
3. fileName.open(&binFile), ios::bin);

**Question 3**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | chr1 | Chr2 | Pt1 | Pt2 | Pt3 |
| Address | 0x7f5aab | 0x7f5bbc | 0x7f5aab | 0x7f5bbc | - |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | chr1 | Chr2 | Pt1 | Pt2 | Pt3 |
| Address | 0x7f5aab | 0x7f5bbc | 0x7f5aab | 0x7f5bbc | 0x7f5bbc |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | chr1 | Chr2 | Pt1 | Pt2 | Pt3 |
| Address | 0x7f5aab | 0x7f5bbc | 0x7f5aab | 0x7f5bbc | 0x7f5aab |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | chr1 | Chr2 | Pt1 | Pt2 | Pt3 |
| Address | 0x7f5aab | 0x7f5bbc | 0x7f5aab | 0x7f5bbc | 0x7f5aab |

\*pt3 = 0x7f5bbc

\*pt3 = %, pt3 = 0x7f5aab

\*pt1 = $, pt1 = 0x7f5aab

Press any key to continue . . .

**Question 4**

1. i) double \*getSalary()

{

double salary = 26.48;

double \*hourlySalary = &salary;

return hourlySalary;

}

ii) double &getWeeklyHours()

{

double n = 46.50;

double &hours = n;

return hours;

}

1. Sandal RM98.98

Slipper RM49.49

Press any key to continue . . .

**Question 5**

1. monthSales = new float [numOfSales];
2. (monthSales == null)
3. count + 1
4. cin >> monthSales[count];
5. delete [] monthSales;

**Question 6**

1. #ifndef COMPUTE\_H

#define COMPUTE\_H

#include "Compute.h"

#include <math.h>

class Compute

{

private:

double a, b, c, discriminant;

double calcDiscriminant(){

return (b\*b) - (4\*(a\*c));

}

public:

Compute (double x, double y, double z){

a = x;

b = y;

c = z;

discriminant = calcDiscriminant();

}

double positive\_root();

double negative\_root();

};

1. Compute (double x, double y, double z){

a = x;

b = y;

c = z;

discriminant = calcDiscriminant();

}

1. double Compute::positive\_root(){

return ((-b + (pow(discriminant,0.5))) / (2\*a));

};

double Compute::negative\_root(){

return ((-b - (pow(discriminant,0.5))) / (2\*a));

};

1. a) Compute obj(a,b,c);

b) obj.positive\_root()

c) obj.negative\_root()

1. i) Enter coefficients a, b and c: 4 5 1

The roots of the quadratic equation are x = -0.25, -1

Press any key to continue . . .

ii) The equation has two real roots

**Part B: Programming Question**

**Main.cpp**

#include "Bread.h"

#include <iostream>

#include <string>

#include <iomanip>

using namespace std;

float calculateTotal(Bread bread);

int main()

{

Bread obj[4];

string code;

int qty;

float ctotal;

cout << "Please enter the information of bread: " << endl << endl;

for(int i=0; i<4; i++)

{

cout << "\nBread #" << i+1;

cout << "\nCode: ";

cin >> code;

cout << "Quantity: ";

cin >> qty;

obj[i].setCode(code);

obj[i].setQuantity(qty);

}

cout << "\n\n\nRecord of Daily Bread Sales" << endl << endl;

cout << "No \t Bread Code \t Bread Name \t\t Price(RM) \t Quantity" << endl;

for(int i=0; i<4; i++)

{

float price = obj[i].getPrice();

cout << i + 1 << "\t " << obj[i].getCode() << "\t\t " << obj[i].getName() << "\t\t " << setprecision (2) << fixed << price << "\t " << obj[i].getQuantity() << endl;

ctotal += calculateTotal(obj[i]);

}

cout << "\n\n Total daily sales: " << ctotal << endl;

}

float calculateTotal(Bread bread)

{

return bread.getPrice() \* bread.getQuantity();

}

**Bread.h**

#ifndef BREAD\_H

#define BREAD\_H

#include "Bread.h"

#include <string>

#include <stdlib.h>

using namespace std;

class Bread

{

private:

string code, name;

float price;

int quantity;

public:

void setCode(string s){

code = s;

}

void setQuantity(int q){

quantity = q;

}

string getCode() const {

return code;

}

int getQuantity() const {

return quantity;

}

float getPrice();

string getName();

};

float Bread::getPrice(){

string sPrice = code.substr(3,3);

char cprice[4];

for (int i = 0; i < sizeof(sPrice); i++)

{

if(i == 1)

cprice[i] = '.';

else

{

int k =0;

if(i >= 3)

k = i-1;

else

k = i;

cprice[i] = sPrice[k];

}

}

price = atof(cprice);

return price;

};

string Bread::getName(){

string plu = code.substr(0,3);

if (!plu.compare("101")){

name = "Raisin Croissant";

}else if (!plu.compare("102")){

name = "Sugar Croissant";

}else if (!plu.compare("201")){

name = "Sambal Bun";

}else if (!plu.compare("202")){

name = "Cheese Bun";

}else{

name = "Kaya Bun";

}

return name;

};

#endif