**Problem solving and practice: C++ Assignment:1**

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**Problem 1**

#include<iostream>

using namespace std;

class Item { // class Item

private: // Declare private members

    int code, price;

    string name;

public:

    void set\_Product(int a, int b, string n) { //set\_Product function definition

        code = a; // Put a in the code

        price = b; // Put b in the price

        name = n; // Put n in the name

    }

    void print\_product() { // print\_product function definition

        cout << code << "\t\t" << name << "\t\t" << price << endl;

    }

    int price\_value(int c) { // price\_value function definition

        if(c == code) // If c and code match

            return price; //return price value

    }

};

int main() {

    Item it[4]; // //Create Array object

    int code, quant, value = 0;

    //Product data input

    it[0].set\_Product(1, 5000, "shampoo");

    it[1].set\_Product(2, 1000, "soap");

    it[2].set\_Product(3, 2000, "Beer");

    it[3].set\_Product(4, 2500, "Milk");

    cout << "Home Plus" << endl;

    cout << "Code\t\tItem\t\tRate\_Won" << endl;

    //Product list output

    for (int i = 0; i < 4; i++)

        it[i].print\_product();

    cout << "Enter the code:";

    cin >> code; //input product code

    cout << "Enter the quantity:";

    cin >> quant; //input quantity

    value = it->price\_value(code); //Put return value in the value

    cout << fixed;

    cout.precision(6); //Output to 6 decimal places

    //Total price output

    cout << "Total price is: " << value \* (double)quant << endl;

    system("pause");

    return 0;

}

Declares item class. Within class, private declared member variables and public defined functions.

The set\_Product function is declared to receive and store factors.

The print\_product function was output to fit the line using \t.

The price\_value function is declared to receive code and return price when matched.

The main function declared Array object for Class. It is designed to put data in each array and to print the quantity multiplied by the quantity and the price of the product that matches the code.

**Problem2**

#include<iostream>

using namespace std;

class student {

    //by default it is private

    string name;

    int student\_ID;

public:

    void getdata(); //get data

    void putdata(); //put data

};

//define member function outside the class

void student::getdata() {

    cout << "Enter the name of student and his/her ID:";

    cin >> name >> student\_ID; //input name and student\_ID

}

//define member function outside the class

void student::putdata() {

    //output

    cout << "student name: " << name << endl;

    cout << "student ID: " << student\_ID << endl;

}

int main() {

    student st; //Create object

    st.getdata(); //object call the function

    st.putdata(); //object call the function

    system("pause");

    return 0;

}

Student class declared. We declared the default variable in class and the getdata, putdata function in public.  
The getdata function is designed to input data and putdata is designed to output data.  
The main function is designed to call a function.

**Problem3**

#include<iostream>

using namespace std;

class big {

    //by default it is private

    int n1, n2;

public:

    void input() { //input function definition

        cout << "Enter two number: ";

        cin >> n1 >> n2;

    }

    void largest() { //largest function definition

        cout << "largest number: " << ((n1 > n2) ? n1 : n2) << endl; //Output by comparison

    }

};

int main() {

    big b; // Create object

    b.input(); //object call the function

    b.largest(); //object call the function

    system("pause");

    return 0;

}

You have declared a big class. As shown in question 2, we declared the default variable and defined input and target functions in private.  
The main function declared object of big class and called input, target function.

**Problem4**

#include<iostream>

using namespace std;

class student {

    //by default it is private

    string name;

    int student\_ID, s1, s2, s3, s4;

    float per;

public:

    void get\_details(); //get\_details

    void put\_details(); //put\_details

};

//define member function outside the class

void student::get\_details() {

    // input/output name

    cout << "Name: ";

    cin >> name;

    // input/output student\_ID

    cout << "ID: ";

    cin >> student\_ID;

    // input/output s1

    cout << "Subject1: ";

    cin >> s1;

    // input/output s2

    cout << "Subject2: ";

    cin >> s2;

    // input/output s3

    cout << "Subject3: ";

    cin >> s3;

    // input/output s4

    cout << "Subject4: ";

    cin >> s4;

}

//define member function outside the class

void student::put\_details() {

    //output

    cout << "Name: " << name << endl;

    cout << "ID: " << student\_ID << endl;

    cout << "Subject1: " << s1 << endl;

    cout << "Subject2: " << s2 << endl;

    cout << "Subject3: " << s3 << endl;

    cout << "Subject4: " << s4 << endl;

    per = ((double)(s1 + s2 + s3 + s4) / 400.0) \* 100; //percentage as float type

    cout << "Total Percentage: " << per << "%" <<endl;

}

int main() {

    student st; //Create object

    st.get\_details(); //object call the function

    st.put\_details(); //object call the function

    system("pause");

    return 0;

}

First, I declared a student class. I declared a default variable in it.

We declared the default variable in class and the get\_details, put\_details function in public.

The get\_details function is inputted, the put\_details function outputs, and the per variable is casted in double and designed to be output.  
The main function declares class object and calls the get\_details and put\_details functions.

**Problem5**

#include<iostream>

using namespace std;

class student {

    //by default it is private

    string name;

    int student\_ID, number;

public:

    void getdata(); //get data

    void putdata(); //put data

};

//define member function outside the class

void student::getdata() {

    // input/output student\_number

    cout << "student:";

    cin >> number;

    // input/output name

    cout << "Name:";

    cin >> name;

    // input/output student\_ID

    cout << "ID:";

    cin >> student\_ID;

}

//define member function outside the class

void student::putdata() {

    //output

    cout << "Student:" << number << endl;

    cout << "Name:" << name << endl;

    cout << "Student ID:" << student\_ID << endl;

}

int main() {

    student st[5]; //Create Array object

    for (int i = 0; i < 5; i++) //Call the getdata function to input five times over.

        st[i].getdata();

    cout << "\n\*\*\*\*Output\*\*\*\*" << endl;

    for (int i = 0; i < 5; i++) //Call the getdata function to output five times over.

        st[i].putdata();

    system("pause");

    return 0;

}

First, I declared a student class.

We declared the default variable in class and the getdata, putdata function in public.

Similarly, you are designed to input the getdata function and output the putdata function.  
Array object declared for class in main function.  
Call the getdata function 5 times for each array, similarly call the putdata function 5 times.