LAB 13

| Question | Task | TIME ALLOCATION | REMARKs |
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| 1 | Overloaded Operator+ member function | 40 minutes |  |
| 2 | Overloaded Operator+= member function | 80 minutes |  |

**Question 1**

Based on the given program, complete the code segment labelled ‘\*\*\*to complete\*\*\*\*’

#include<iostream>

#include<iomanip>

using namespace std;

class Rice

{ float price\_per\_kg, total\_weight;

public:

Rice(float w)

{ price\_per\_kg = 10.0;

total\_weight = w;

}

void display\_rice()

{ cout<<"----------------------------------------"<<endl;

cout<<" Rice Details "<<endl;

cout<<fixed<<setprecision(2);

cout<<"Total weight : "<<total\_weight<<endl;

cout<<"Price perkg (RM) : "<<price\_per\_kg<<endl;

cout<<"Total (RM) : "<<total\_weight\*price\_per\_kg<<endl;

}

};

**//\*\*\*to complete\*\*\*\***

A) Create class **Product**.

1. private data members : kg (float)
2. public member functions

* **Rice operator+(….)**Parameter: constant *Product* reference object.

Returns a *Rice* object whose total\_weight is addition of the weights(kg) of 2 product objects.

* **void setdata()**

Get user input for product’s kg (weight).

B) In **main()**

* Create two objects of Product class named *A* and *B*.
* Call ***setdata(…)*** for each object
* Declare a Rice object named *H*.
* Assign *H* with the result of A’s kg added with B’s kg by calling the overloaded operator addition function.
* Display H’s details by calling ***display\_rice().***

**[Note: refer to sample output screens below]**

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| **Sample Output Screen** |
| Enter product's weight (kg) :***5***  Enter product's weight (kg) :***3***  ----------------------------------------  Rice Details  Total weight : 8.00  Price perkg (RM) : 10.00  Total (RM) : 80.00 |

**Question 2**

Define class Produce.

* Private data members : **price** (float), **total** (float) and **qty** (integer).
* Public member functions:
  + Define a default constructor to initialize all data members to zeros.
  + Define function ***set\_input(….)*** which takes in 2 parameters from main( ) and initializes them to price and qty respectively. Calculate total [*price* multiply *qty*].
  + Declare class Bill as a friend.

Define class Bill

* Private data member : **grand\_total** (float).
* Public member functions:
  + Define a default constructor to initialize grand\_total to zero.
  + Define function ***display( )*** to display *grand\_total* [refer to **sample output screen**].
  + Define the overloaded ***+=*** function which adds Produce object’s **total** to **grand\_total**. In the function, display *total* also (refer to sample output screen, i.e. subtotal).

In main( ):

* Declare an object **BL** of class Bill, and object **pd** of class Produce.
* In a *do-while* loop:
* Prompt user to enter price and quantity
* Using object pd, call set\_input (…), passing in user input for price and quantity.
* Using object BL, call the function that overloads the "+=" operator [Hint: pass in object pd as parameter].
* Prompt user on whether or not to continue looping.
* Using object BL, call function display( ).

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| **Sample Output Screen** |
| Enter price : RM ***10***  Enter quantity : ***3***  Subtotal : RM 30  Continue (y/n)? ***y***  Enter price : RM ***12***  Enter quantity : ***3***  Subtotal : RM 36  Continue (y/n)? ***y***  Enter price : RM ***4.50***  Enter quantity : ***5***  Subtotal : RM 22.50  Continue (y/n)? ***n***  ::The grand total of the bill is : RM 88.50 |