LAB 6

| Question | Task | TIME ALLOCATION | REMARKs |
| --- | --- | --- | --- |
| 1 | Constructors and Destructor | 40 minutes |  |
| 2 | Destructor and class operations | 80 minutes |  |

**Question 1**

(a) Complete the codes based on the given instructions that are commented:

#include<iostream>

using namespace std;

class MasterStudent

{ string name, title;

int status;

public:

MasterStudent(string n, string t, int x)

{ name = n;

title = t;

status = x;

}

MasterStudent()

{ name = "Peter";

title = "A Study on the Usability Factors of Mobile Apps.";

status = 1;

}

int getStatus()

{ return status;

}

string getName()

{ return name;

}

string getTitle()

{ return title;

}

~MasterStudent()

{ cout<<"\n\n~End of Details~Student~"<<name<<endl;

}

};

int main()

{ MasterStudent MS1;

cout<<"================================="<<endl;

cout<<" Masters Student Details "<<endl;

cout<<"================================="<<endl;

cout<<"Name \t: "<<MS1.getName()<<endl;

cout<<"Title \t: "<<MS1.getTitle()<<endl;

cout<<"Status \t: ";

if(MS1.getStatus() ==1) cout<<"Approved"<<endl;

else cout<<"Pending"<<endl;

//Create another object passing the values

//"Aliana Mahmud" for name,   
 //"Customer Satisfaction towards Green Products" for title, 0 for status

//Use the cout statements given earlier to display the content of the   
 // new object.

//refer to label X for the output to be displayed

}

**X**

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| **Sample Output Screen 1 a)** |
| **=================================**  **Masters Student Details**  **=================================**  **Name : Peter**  **Title : A Study on the Usability Factors of Mobile Apps.**  **Status : Approved**  **=================================**  **Masters Student Details**  **=================================**  **Name : Alina Mahmud**  **Title : Customer Satisfaction towards Green Products**  **Status : Pending**  **~End of Details~Student~Alina Mahmud**  **~End of Details~Student~Peter** |

1. Modify main() of program at (a) to initialize the ***array of 5 objects of MasterStudent*** class with the data in the table below and then, to display the output (refer to sample output screen 1b) :

|  |  |  |
| --- | --- | --- |
| **Name** | **Title** | **Status** |
| Johanes Kai | “Working with Generation X employees: food industry” | 1 |
| Cameron Chan | “Collective Co-Creation within the Open Source Software Community” | 1 |
| Meriam Azlan | “What Makes Online Video Advertisements Go Viral?” | 0 |
| Peter Pan | “A Study on Form 1 student’s learning of Algebra” | 1 |
| Dory Dory | “Social media use for corporate communications” | 0 |

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| **Sample Output Screen 1 b)** |
| **=================================**  **Masters Student Details 1**  **=================================**  **Name : Johanes Kai**  **Title : Working with Generation X employees: food industry**  **Status : Approved**  **=================================**  **Masters Student Details 2**  **=================================**  **Name : Cameron Chan**  **Title : Collective Co-Creation within the Open Source Software Community**  **Status : Approved**  **=================================**  **Masters Student Details 3**  **=================================**  **Name : Meriam Azlan**  **Title : What Makes Online Video Advertisements Go Viral?**  **Status : Pending**  **=================================**  **Masters Student Details 4**  **=================================**  **Name : Peter Pan**  **Title : A Study on Form 1 student's learning of Algebra**  **Status : Approved**  **=================================**  **Masters Student Details 5**  **=================================**  **Name : Dory Dory**  **Title : Social media use for corporate communications**  **Status : Pending**  **~End of Details~Student~Dory Dory**  **~End of Details~Student~Peter Pan**  **~End of Details~Student~Meriam Azlan**  **~End of Details~Student~Cameron Chan**  **~End of Details~Student~Johanes Kai** |

**Question 2**

1. Given the declarations for a class ***Books*** that contains the following features:

#include <iostream>

#include<iomanip>

using namespace std;

class Books

{

private:

string isbnNo, title, author;

float price, discountedprice, discountperc;

public:

void set\_Data();

void calcDiscountedPrice();

void print();

float getDiscountedPrice();

~Books();

};

Write the definitions of the member functions **outside of the class** based on the desriptions given below:

1. **set\_Data()**

Get user inputs for *isbnNo, title, author, price* and *discountperc.*

1. **calcDiscountedPrice()**

Find the *discountedPrice* (the price after minus the discounted amount).

1. **print()**

Display the book details.

1. **getDiscountedPrice()**

Return the *discountedPrice.*

1. **~Books()**

Display “--------------Thank you-----------------“.

1. Create another function named **func(…)** that accepts an object (from Books class) by reference using a reference object as an argument. In this function, call **set\_Data(),** **calcDiscountedPrice()** and **print()** using the reference object.
2. In main(), do the following:
3. Create an object of class Books called **B1**.
4. Pass object B1 to function call **func(…).**
5. Create an array of class Books called **B2** and size of the array is 5.
6. Using a *for* loop, call ***func(…)***, passing the object elements of array B2. Determine the most expensive book’s price (after discount) and the number of books whose price after discount is below RM30.
7. Display the most expensive book’s price (after discount) and the number of books whose price after discount is below RM30.

|  |
| --- |
| **Sample Output Screen** |
| Enter data for new incoming book this Month......  Enter ISBN : ***102009912***  Enter Title : ***7 Habits of Highly Effective People***  Enter Author's name : ***Stephen Covey***  Enter price : RM***400.00***  Enter discount (%) : ***30***  --------------------------------------------------------  Book Details  --------------------------------------------------------  ISBN : 102009912  Title : 7 Habits of Highly Effective People  Author : Stephen Covey  Original Price : RM 400.00  Discounted Price : RM 280.00  Now we shall enter and display data for 5 special boooks....  Enter ISBN : ***1892110011***  Enter Title : ***C++ Programming***  Enter Author's name : ***Deitel***  Enter price : RM***42.50***  Enter discount (%) : ***10***  --------------------------------------------------------  Book Details  --------------------------------------------------------  ISBN : 1892110011  Title : C++ Programming  Author : Deitel  Original Price : RM 42.50  Discounted Price : RM 38.25  Enter ISBN : ***10210211112***  Enter Title : ***Top 10 Influential People***  Enter Author's name : ***Peter Stark***  Enter price : RM***30.00***  Enter discount (%) : ***5***  --------------------------------------------------------  Book Details  --------------------------------------------------------  ISBN : 10210211112  Title : Top 10 Influential People  Author : Peter Stark  Original Price : RM 30.00  Discounted Price : RM 28.50  Enter ISBN : 1201021124  Enter Title : ***Phyton Programming Made Easy***  Enter Author's name : ***Julius Brevern***  Enter price : RM***120.00***  Enter discount (%) : ***30***  --------------------------------------------------------  Book Details  --------------------------------------------------------  ISBN : 1201021124  Title : Phyton Programming Made Easy  Author : Julius Brevern  Original Price : RM 120.00  Discounted Price : RM 84.00  Enter ISBN : ***120121342***  Enter Title : ***Amazing Race***  Enter Author's name : ***Alina Mansur***  Enter price : RM***26.50***  Enter discount (%) : ***50***  --------------------------------------------------------  Book Details  --------------------------------------------------------  ISBN : 120121342  Title : Amazing Race  Author : Alina Mansur  Original Price : RM 26.50  Discounted Price : RM 13.25  Enter ISBN : ***1021021132***  Enter Title : ***Goodness Gracious***  Enter Author's name : ***Francine Q***  Enter price : RM***102.00***  Enter discount (%) : ***50***  --------------------------------------------------------  Book Details  --------------------------------------------------------  ISBN : 1021021132  Title : Goodness Gracious  Author : Francine Q  Original Price : RM 102.00  Discounted Price : RM 51.00  --------------------------------------------------------  The most expensive book is RM 84.00  The number of books that are below RM 30 are : 2  ----------------Thank you----------------  ----------------Thank you----------------  ----------------Thank you----------------  ----------------Thank you----------------  ----------------Thank you----------------  ----------------Thank you---------------- |