



UTM
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SECJ1013-05 Programming Technique I

Assignment 2

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1. Answer : False

Reason : In case 2, there are no break statements written to end processing of its statement within the switch. Without break, the program continues to the next statement in case 3, executing the statements until a break statement is reached. Therefore, the program will calculate interest = 2.6 and then interest = 2.9 for that particular user account which will give a false amount of interest.

2. Answer : False

Reason : Initially, the condition statement of outer for loop, $i \leq y$ is true, and the condition of inner loop statement, $j \leq x$ is also true, then loop execution will continue with the same inner loop condition $j=3$ and forming a loop one more times as soon as it finds that the condition is false, it will come out of the inner loop and search for the outer loop condition. Then i will reset to 1 again and it will execute again as the outer loop condition is true and executes in the inner loop as the j is set to 1 again and $j \leq x$ is true. It has whitespace in front of the number as the field width is set to 2. The answer is 0 0 0 0.

3. Answer : False

Reason : “terminate ()” is not a function of any programming language. The function that transfers the control of programme to the end of programme and causes a program to terminate is the “exit ()” function.

4. Answer : True

Reason : The first program output calling a function from function call to function definition “int call (int x) “ which is “call (5)”. The value of $b=x=5$ and $a=10$, variable a has been initialized in function definition and uses “static int” to remain in memory until the end of the program. The function definition calculates the variable a which is $a+=b++$, $a= 10+5$ ($b++$ original value is returned, and then the variable is increased by one). The first output line is “The value return is 15”. The function definition returns $a=15$ to the next function call which is call (12). The value of $b=x=12$ and the function will calculate a new value for variable a , $a=15+12$ where $a=27$ and the second output line is “The value return is 27”. After that, the program command `system("pause");` . Thus, the program will wait for any keyboard input before it continues execution of the program.

Answer 1(a):

```
#include <iostream>
using namespace std;
int main()
{
    // initialize x to a dummy value
    char x = 'n';
    cout << "Enter 'y' or non-'y': " << endl;
    cin >> x;
    // write the output using the ?: operator
    x == 'y'? cout<<"If 'y', answer is = 1" : cout<<"Else, answer is = 0";
    cout << endl;
    system("pause");
    return 0;
}
```

Answer 1(b):

```
/******
Program to show input and output of a banking activity.
*****/
```

```
#include <iostream>

using namespace std;

int main()
{
    char code;
    float amount, totalBalance, deposit, withdrawal;
    float balance = 300; //The balance is set to RM300.

    //Display what 'd' and 'w' means to the user.
    cout<<"Enter your transaction code, d - deposit, w - withdrawal: \n";

    cin>>code; //Get code from user
    switch (code)
    {
        case ('d'):
            cout<<"Enter amount RM";
            cin>>amount;
            totalBalance= balance + amount;
            cout<<"Your current balance is now RM "<<totalBalance;
            break;
        case 'w' :
            cout<<"Enter amount RM";
            cin>>amount;
```

```

        totalBalance = balance - amount;
        cout<<"Your current balance is now RM "<<totalBalance;
        break;
    default :
        cout<<"We're sorry, the code is not allowed. You must try again. Thank you!";
        break;

}

return 0;
}

```

Answer 2(a):

```

#include <iostream>
using namespace std;

```

```

int main()
{
    int a, x = 0;
    cout<<" Please enter a number in the range of 1 through 4.\n ";
    cin>> a;

```

```

switch(a)
{
    case 1 :
        x ++;
        cout<<x<<endl;
        break;

```

```

    case 2 :
        x ++;
        cout<<x<<endl;
        break;

```

```

    case 3 :
        x --;
        cout<<x<<endl;
        break;

```

```

    case 4 :
        x --;
        cout<<x<<endl;
        break;

```

```

    default:
        x+=2;
        cout<< x<<endl;

```

```

        cout<<"\nInvalid. Only number 1 to 4 is valid.";
        break;
    }
    system ("PAUSE");
    return 0;
}

```

Answer 3(a):

//This program will compute and display the charges for patients of Hospital Tun Aminah Johor.

```

#include <iostream>
using namespace std;

int daysSpent (int &);           //asks user number of days spent
double roomrate (double &);      //calculates room rate
double medcharges (double &);    //calculates medication charges
double service (double &);       //calculates service charges
int main()
{
    int d;                       //days spent
    double r,m,s;                //r=room rate, m=medication charges, s=service charges
    daysSpent(d);
    roomrate(r);
    medcharges(m);
    service(s);

    cout<<"\nNumber of days spent is "<<d<<endl;    //prints inputs by user
    cout<<"Room Rate is "<<r<<endl;
    cout<<"Medication Charges is "<<m<<endl;
    cout<<"Enter Service Charges is "<<s<<endl;

    return 0;
}
int daysSpent(int &day)
{
    cout<<"\nEnter the number of days spent: ";
    cin>>day;
    return day;
}
double roomrate (double &rate)
{
    cout<<"\nEnter Room Rate: ";
    cin>>rate;
    return rate;
}
double medcharges (double &med)
{

```

```

        cout<<"\nEnter Medication Charges: ";
        cin>>med;
        return med;
    }
    double service (double &sv)
    {
        cout<<"\nEnter Service Charges: ";
        cin>>sv;
        return sv;
    }

```

Answer 3(b):

//This program will compute and display the charges for patients of Hospital Tun Aminah Johor.

```

#include <iostream>
using namespace std;

int daysSpent (int &);           //asks user number of days spent
double roomrate (double &);      //calculates room rate
double medcharges (double &);    //calculates medication charges
double service (double &);       //calculates service charges
void total (int, double, double, double); //calculates total charges for in-patient
double total (double, double);   //calculates total charges for out-patient

char Ptype;                      //Patient type

int main()
{
    int d;                       //days spent
    double r,m,s,bill;           //r=room rate, m=medication charges, s=service charges

    cout<<"\tOptions\n\t[I] In-patient\t[O] Out-patient";
    cout<<"\n\n\tPlease enter [I] or [O] only: ";
    cin>>Ptype;

    daysSpent(d);
    roomrate(r);
    medcharges(m);
    service(s);

    if (Ptype == 'I' || Ptype == 'i')
        total (d,r,m,s);

    else if (Ptype == 'O' || Ptype == 'o'){

        bill = total(m,s);
        cout<<"\nThank you!"<<endl;
        cout<<"Your total charges is "<<bill;}
}

```

```

        return 0;
    }
    int daysSpent(int &day)
    {
        cout<<"\nEnter the number of days spent: ";
        cin>>day;
        return day;
    }
    double roomrate (double &rate)
    {
        cout<<"\nEnter Room Rate: ";
        cin>>rate;
        return rate;
    }
    double medcharges (double &med)
    {
        cout<<"\nEnter Medication Charges: ";
        cin>>med;
        return med;
    }
    double service (double &sv)
    {
        cout<<"\nEnter Service Charges: ";
        cin>>sv;
        return sv;
    }
    void total (int d, double r, double m, double s)
    {
        double t;
        t = (d*r)+m+s;
        cout<<"\nThank you!"<<endl;
        cout<<"Your total charges is "<<t;
    }
    double total (double m, double s)
    {
        double t;
        t=m+s;
        return t;
    }
}

```

Answer 4(a): 3

Answer 4(b):

6 12

0 0 0

Enter two numbers: 12 14

12 14 0

14 15 -1

16 15 -1

14 15 -1

Answer 4(c):

```
int input( ){
int noEmployees;
cout<<"ENTER THE NUMBER OF EMPLOYEES IN THE COMPANY: ";
cin>>noEmployees;

while (noEmployees<=1){
    cout<<"Please ENTER NO. EMPLOYEES MORE >=1 :";
    cin>>noEmployees;
}
return noEmployees;
}
int totalDay(int x){
    int noEmployees=x;
    int totalDay = 0;
    int absent;

    for (int count=0;count<noEmployees;count++){

        cout<<"ENTER THE NUMBER OF DAYS EACH EMPLOYEE ABSENT DURING THE
        PAST YEAR :"<<count+1<<endl;
        cin>>absent;
        totalDay+=absent;
        }
        while (absent<0)
        {
            cout<<"PLEASE TRY AGAIN! DO NOT USE NEGATIVE NUMBER :";
            cin>>absent;
        }
        return totalDay;
    }
double calcAvg(int noEmployees, int totalDay){
    int x=noEmployees;
    int y=totalDay;
    double avg;

    avg=static_cast<double> (x*365)/y;
    return avg;
}
```