

Find the 2 bugs in the following code:

```
int main()
{
    float temps={75.6, 60.5, 92.3};

    // loop through all elements of temps
    int i;
    do {
        cout << temps[i] << endl;
    } while(i<3);

    return 0;
}
```

Find the 2 bugs in the following code:

```
bool myFunction(int x);

int main()
{
    int a=42

    if (myFunction(a))
        cout << "Hello!\n";
    else
        cout << "Goodbye!\n";

    return 0;
}

// myFunction will return true only if input is even
bool myFunction(int x)
{
    bool answer;
    if (x%2==0)
        answer=true;
    else
        answer=false;
}
```

Presuming the bugs are fixed in the program, suggest an alternative name for myFunction.
isEven

What is the output of the following code (what is printed to the screen):

```
char myFunction2(int b);

int main()
{
    char j;
    int x=2;

    j=myFunction2(x);
    cout << j << "\t" << x <<endl;
    return 0;
}

char myFunction2(int b)
{
    switch(b) {
        case 1:
            return 'v';
        case 2:
            return 'p';
        case 3:
            return 'o';
    }

    return 'd';
}
```

What is the output of the following code (what is printed to the screen):

```
int main()
{
    int b[5];

    for(int i=0; i<5; i++)
        b[i]=3*i;

    for(int n=4; n>=0; n--)
        cout << b[n] << " ";

    cout << endl;

    return 0;
}
```

What is the output of the following code (what is printed to the screen):

```
void myFunction3(float num1, float &num2);

int main()
{
    float a=3.141, b=-2.718;

    myFunction3(a,b);

    cout << a << " " << b;

    return 0;
}

void myFunction3(float num1, float &num2)
{
    float r=num1;
    num1=num2;
    num2=r;
}
```

3.141 3.141 (value of b is changed because it is called by reference, value of a is not changed because it is called by value)

What is the output of the following code (what is printed to the screen):

```
int main()
{
    int b = 2;
    while(b<20)
    {
        cout << b << endl;
        b*=3;
    }

    return 0;
}
```

Write a recursive function to produce the same output as the above while loop.

List two escape sequences:

`\n \t \"`

List two code libraries we have used over the semester (e.g., to define `cout` or `pow`).

What is the output of the following code (what is printed to the screen);

```
int main()
{
    float b[4] = {2.5,-4,0.2,3};
    int d=b[2], p;

    p=b[3];
    p%=6;
    cout << p << b[1] << " " << d << endl;

    return 0;
}
```

The following code does not follow the programmer's intent. Explain the programmer's intent (as conveyed by the format of the code) and how to edit the code to follow the intended action.

```
int main()
{
    int a;
    cout << "Give me a number: ";
    cin >> a;

    if(a%10==0)
        cout << "I like multiples of 10.\n";
    else
        cout << "I do not like that number. Please enter another number: ";
        cin >> a;
        cout << "Thanks for entering another number.\n";

    endl;
}
```

The programmer intended to request and take a new number from the user if the user first enters a number not divisible by 10. This does not work in the current code, because the three lines after the else have to be enclosed in curly braces ({ right after else and } after the final cout).

We have a program in which we define the class penguin

```
class Student
{
public:
    void setInformation(string inName, char inCampus, int inCredits);
    string getName(); // returns name
    char getCampus(); // returns campus
    int getCredits(); // returns number of credits completed
private:
    string name;
    char campus;
    int creditsCompleted;
}
```

What C++ statement (inside int main) will declare a Student object assigned to the variable name Charlie?

What member functions of Student are accessor functions?

Let us say we have successfully initialized Charlie's member values, including setting Charlie's campus to the letter R (for Rose Hill). What happens when we run the following statement:

```
cout << Charlie.campus << endl;
```

We will get an error, because campus is a private member variable of Charlie. Instead, we should use Charlie.getCampus()

Write the function definition for the setInformation function for the class Student.

What types of input values would make the following expressions true:

Example expression:

$r > 4 \ \&\& \ r < 12$ (where r is int)

Example answer:

The expression will be true when r is between 5 and 11, inclusive; otherwise it will be false.

$!(r > 8)$ (where r is int)

$p == 'z' \ || \ p == 'q' \ \&\& \ p == 'm'$ (where p is char)

$t < 15 \ || \ t > -4$ (where t is float)

Any value of t will return true, because all numbers are less than 15 or greater than -4.