# Week 4 recitation assignment

**Problem 3.1.a.** Below is code that asks the user for the day of the week as a number (Monday is 1, Sunday is 7) and then prints a corresponding statement. Identify the error(s):

Errors:

- Line 6 - The case is a char instead of an int. Removed quotes
- Line 10 - Does not break after the case- added break
- Line 13 - Does not break after the case- added break

```
1   int day;
2   cout << "What number day of the week is it?" << endl;
3   cin >> day;
4   switch (day) {
5           case 6: //changed from char to int
6           cout << "Today is Saturday";
7           break;
8       case 7:
9           cout << "Today is Sunday";
10          break; //added break statement
11      default:
12          cout << "Looking forward to the Weekend";
13          break; //added break statement
14  }
```

**Problem 3.1.b**. Below is code with the same goal as the previous question, but different error(s). Identify the error(s):

Errors:

- changed `int day = 4;` to actually prompt for user input using cin
- added curly brackets for the switch function

```
1   //changed "int day= 4;" to actually prompt for user input
2   int day;
3   cout << "What number day of the week is it?" << endl;
4   cin >> day;
5   switch (day) { //added curly bracket
6       case 6:
7           cout << "Today is Saturday";
8           break;
9       case 7:
10          cout << "Today is Sunday";
11          break;
12      default: //added a colon
13          cout << "Looking forward to the Weekend";
14  } //added curly bracket
```

**Problem 3.1.c.** The code below is meant to determine if an angle is acute, obtuse, or right. Spot the error(s):

Errors:

- Line 6 - changed `angle` to `x` to match the rest of the program
- Line 10 - changed = to == so that the else if statement does not change the value of the variable
- Line 13 - changed `els` to `else`

```
#include <iostream>
using namespace std;

int main()
{
    int x = 40; //changed variable name to match the rest of the program
    if (x<90) {
        cout<<"It is an acute angle." ;
    }
    else if(x==90) { //changed from single = to double =
        cout<<"It is a right angle.";
    }
    else{ //changed from "els"
        cout<<"It is an obtuse angle.";
    }
}
```

**Problem 3.1.d.** The code below implements an exclusive OR logical operation, which means that only one of the conditions may be true. Spot the error(s):

Errors:

- Line 2 - No less than and greater than symbols around the iostream library
- Line 7 - Changed variable type from integer to Boolean
- Line 12 - Changed `y` to `value`
- Line 13 - added curly bracket to match the first if condition
- Line 20 - changed `<` to `<<`

```
// This program implements XOR
#include <iostream> //added '<' and '>' around iostream library
using namespace std;

//Set the variable value to 1 when x or y is 1
int main(){
    bool x = 1,y=0,value; //changed from int to bool
    if (x == 1){
        if(y==0)
        value = 1;
        else
        value == 0; //changed from 'y' to 'value'
    } // added curly bracket to match if x==1
    if(x==0){
        if(y==0)
        value = 0;
        else
        value = 1;
    }
```

```
20        cout << value << endl; //changed '<' to '<<'
21        return 0;
22    }
```

**3.2 Final Velocity of a Rocket**

**3.2.a**
initialize doubles initial and final velocity
initialize char fuel type
print "enter initial velocity"
cin velocity
print "enter fuel type"
cin fuel type

if velocity < 10 : set appropriate fuel values
if 10 <= velocity <= 40: set appropriate fuel values
if velocity>40: set appropriate fuel values

final velocity= velocity + 20(fuel)
print final velocity

**3.2.b**
velocity = -10, fuel = A:
invalid velocity

velocity = 0, fuel = A:
final velocity = 100

velocity = 10, fuel = A:
final velocity = 130

velocity = 10, fuel = c:
invalid fuel

velocity = 40, fuel = B:
final velocity = 280

velocity = 100, fuel = C:
final velocity = 280

**3.2.c**
boundaries = 0, 10, 40.
if velocity < 0, then invalid input
if 0<velocity<10, then use first set of fuel numbers
if 10<=velocity<=40, then use second set of fuel numbers
if velocity>40, then use last set of fuel numbers

**3.2.d**

```
1    #include <iostream>
2    using namespace std;
3
```

```cpp
int main() {
    double int_velo, final_velo;
    char fuel;
    cout << "Enter the initial velocity:" << endl;
    cin >> int_velo;
    if(int_velo<0) {
        cout << "Please input a valid velocity" << endl;
        return 0;
    }
    cout << "Enter the fuel type:" << endl;
    cin >> fuel;
    if (int_velo<10) {
        switch(fuel){
            case 'A':
                fuel = 5;
                break;
            case 'B':
                fuel = 10;
                break;
            case 'C':
                fuel = 20;
                break;
            default:
                cout << "Please input a valid fuel type" << endl;
                return 0;
        }
    } else if (int_velo>=10 && int_velo<=40) {
        switch(fuel){
            case 'A':
                fuel = 6;
                break;
            case 'B':
                fuel = 12;
                break;
            case 'C':
                fuel = 24;
                break;
            default:
                cout << "Please input a valid fuel type" << endl;
                return 0;
        }
    } else if (int_velo>40) {
        switch(fuel){
            case 'A':
                fuel = 3;
                break;
            case 'B':
                fuel = 6;
                break;
            case 'C':
                fuel = 9;
                break;
            default:
                cout << "Please input a valid fuel type" << endl;
                return 0;
        }
    }
```

```
61        final_velo = int_velo+(20*fuel);
62        cout << "The final velocity is " << final_velo << " m/s." << endl;
63        return 0;
64    }
```