

## Week 3 Assignment

Muhammad Rafi Cahya Ramadhana

22/492162/PA/21075

### 1. Source code

```
2. #include<iostream>
#include <cmath>

using namespace std;

int main() {
    double a, b, c;
    double x1, x2;

    cout << "Input the values a, b, and c" << endl;
    cin >> a >> b >> c;

    double d = (b*b) - 4 * (a*c);

    cout << "Determinant of said function is " << d << endl;

    if (d>0) {
        x1 = ((-1 * b) + sqrt(d))/(2*a);
        x2 = ((-1 * b) - sqrt(d))/(2*a);

        cout << "The values x1 and x2 are " << x1 << " and " << x2 <<
endl;
    } else if (d == 0) {
        x1 = (-1 * b)/(2*a);
        x2 = x1;

        cout << "The values x1 and x2 are " << x1 << " and " << x2 <<
endl;
    } else if (d<0) {
        x1 = ((-1 * b)/(2*a)) + (sqrt(abs(d))/(2*a));
        x2 = ((-1 * b)/(2*a)) - (sqrt(abs(d))/(2*a));

        cout << "The values x1 and x2 are imaginary numbers " << x1 <<
"i and " << x2 << "i" << endl;
    }

    return 0;
}
```

## Screenshot

Input the values a, b, and c 2 6 4 Determinant of said function is 4 The values x1 and x2 are -1 and -2 Process finished with exit code 0	Input the values a, b, and c 1 4 4 Determinant of said function is 0 The values x1 and x2 are -2 and -2 Process finished with exit code 0
Input the values a, b, and c 2 3 6 Determinant of said function is -39 The values x1 and x2 are imaginary numbers 0.811249i and -2.31125i Process finished with exit code 0	

## 2. Source code

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

int main() {

    int date, month;
    string zodiac = "??";

    cout << "Insert birth date \n";
    cin >> date;
    cout << "Insert birth month \n";
    cin >> month;

    if (((date >= 21) && (month == 3)) || ((date <= 19) && (month == 4))) {
        zodiac = "Aries";
    } else if (((date >= 20) && (month == 4)) || ((date <= 20) && (month == 5))) {
        zodiac = "Taurus";
    } else if (((date >= 21) && (month == 5)) || ((date <= 20) && (month == 6))) {
        zodiac = "Gemini";
    } else if (((date >= 21) && (month == 6)) || ((date <= 22) && (month == 7))) {
        zodiac = "Cancer";
    } else if (((date >= 23) && (month == 7)) || ((date <= 22) && (month == 8))) {
        zodiac = "Leo";
    } else if (((date >= 23) && (month == 8)) || ((date <= 22) && (month == 9))) {
        zodiac = "Virgo";
    } else if (((date >= 23) && (month == 9)) || ((date <= 22) &&
```

```

(month == 10)) {
    zodiac = "Libra";
} else if ((date >= 23) && (month == 10) || ((date <= 21) &&
(month == 11)) {
    zodiac = "Scorpio";
} else if ((date >= 22) && (month == 11) || ((date <= 21) &&
(month == 12)) {
    zodiac = "Sagittarius";
} else if ((date >= 22) && (month == 12) || ((date <= 19) &&
(month == 1)) {
    zodiac = "Capricorn";
} else if ((date >= 20) && (month == 1) || ((date <= 18) &&
(month == 2)) {
    zodiac = "Aquarius";
} else if ((date >= 19) && (month == 2) || ((date <= 20) &&
(month == 3)) {
    zodiac = "Pisces";
}

cout << zodiac;

return 0;
}

```

## Screenshot

```

Insert birth date
6
Insert birth month
7
Cancer
Process finished with exit code 0

```

```

Insert birth date
2
Insert birth month
3
Pisces
Process finished with exit code 0

```

## 3. Source code

```

4. #include<iostream>
using namespace std;

int main() {
    int n;
    string month, days;
    cout << "Insert a month's number \n";
    cin >> n;

    switch (n) {
        case 1 :
            month = "January";
            days = "31";
            break;

```

```
        case 2 :
            month = "February";
            days = "28";
            break;
        case 3 :
            month = "March";
            days = "31";
            break;
        case 4 :
            month = "April";
            days = "30";
            break;
        case 5 :
            month = "May";
            days = "31";
            break;
        case 6 :
            month = "June";
            days = "30";
            break;
        case 7 :
            month = "July";
            days = "31";
            break;
        case 8 :
            month = "August";
            days = "31";
            break;
        case 9 :
            month = "September";
            days = "30";
            break;
        case 10 :
            month = "October";
            days = "31";
            break;
        case 11 :
            month = "November";
            days = "30";
            break;
        case 12 :
            month = "December";
            days = "31";
            break;
        default:
            month = "There is no such month";

    }

    cout << month << " has " << days << " days";

    return 0;
}
```

## Screenshot

```
Insert a month's number
12
December has 31 days
Process finished with exit code 0
```

```
Insert a month's number
2
February has 28 days
Process finished with exit code 0
```

## 4. Source code

```
5. #include<iostream>
#include <cmath>

using namespace std;

int main() {
    double n, m;
    double one = 1;

    cout << "Input a number" << endl;
    cin >> n;

    m = fmod(n, one);
    if ( m == 0) {
        cout << n << " is an integer";
    } else {
        cout << n << " is not an integer";
    }

    return 0;
}
```

## Screenshot

```
Input a number
12
12 is an integer
Process finished with exit code 0
```

```
Input a number
12.135266532
12.1353 is not an integer
Process finished with exit code 0
```