- Installation of JDK
- Installation of Eclipse
- Hello World program (System.out.println)
- Java program structure
- Class name must match with filename (class HelloWorld, file: HelloWorld.java)
- One Line Comment and Multi-Line Comments
- Basic type of variables: byte, char, short, int, long, float, double, boolean, void
- One Important data structure but not primitive: String, String can be considered as concatenation of chars. But String is not a primitive type.
- String can be one character and multiple characters but must be double quoted(“”). Char must only be one quotes with single quotes (‘’)
- final variable
- Type casting
- Operations (+; -; *; /; %; ++; --; %)
- String
- Math
- booleans
- if else statement
- Switch statement
- For loop
- While Loop
- Break / Continue
- Arrays
- Another form of for loop using array

Questions After Lecture:

- Explain the meaning of public; static; void;
- What does the main function mean in a class?
- How to read string/char/int from JAVA console?
- How to output the result to the JAVA console?
- What is the difference between comparison and assignment?
- What is the result of comparison?
- What is the consequence when you forget the `break` between each case in switch statement?
- What is the usage of default in switch statement
- How do you exit the loop without finishing it?
- Can we extend the array in java?

CCC 真题

Problem J1: Triangle Times

Problem Description
You have trouble remembering which type of triangle is which. You write a program to help.

Your program reads in three angles (in degrees).

- If all three angles are 60, output `Equilateral`.
- If the three angles add up to 180 and exactly two of the angles are the same, output `Isosceles`.
- If the three angles add up to 180 and no two angles are the same, output `Scalene`.
- If the three angles do not add up to 180, output `Error`.

Input Specification
The input consists of three integers, each on a separate line.

Each integer will be greater than 0 and less than 180.

Output Specification
Exactly one of `Equilateral`, `Isosceles`, `Scalene` or `Error` will be printed on one line.

Sample Input 1
```
60
70
50
```

Output for Sample Input 1
```
Scalene
```

Sample Input 2
```
60
75
55
```

Output for Sample Input 2
```
Error
```

Problem J1: Next in line

Problem Description
You know a family with three children. Their ages form an arithmetic sequence: the difference in ages between the middle child and youngest child is the same as the difference in ages between the oldest child and the middle child. For example, their ages could be 5, 10 and 15, since both adjacent pairs have a difference of 5 years.

Given the ages of the youngest and middle children, what is the age of the oldest child?

Input Specification
The input consists of two integers, each on a separate line. The first line is the age Y of the youngest child ($0 \leq Y \leq 50$). The second line is the age M of the middle child ($Y \leq M \leq 50$).

Output Specification
The output will be the age of the oldest child.

Sample Input 1
```
12
15
```

Output for Sample Input 1
```
18
```

Sample Input 2
```
10
10
```

Output for Sample Input 2
```
10
```

Problem J1: Speed fines are not fine!

Problem Description
Many communities now have "radar" signs that tell drivers what their speed is, in the hope that they will slow down.

You will output a message for a "radar" sign. The message will display information to a driver based on his/her speed according to the following table:

km/h over the limit	Fine
1 to 20	$100
21 to 30	$270
31 or above	$500

Input Specification
The user will be prompted to enter two integers. First, the user will be prompted to enter the speed limit. Second, the user will be prompted to enter the recorded speed of the car.

Output Specification
If the driver is not speeding, the output should be:

`Congratulations, you are within the speed limit!`

If the driver is speeding, the output should be:

`You are speeding and your fine is $`F.

where F is the amount of the fine as described in the table above.

Sample Session 1 (with output shown in `text`, user input in *italics*)
```
Enter the speed limit:  40
Enter the recorded speed of the car:  39
Congratulations, you are within the speed limit!
```

Sample Session 2
```
Enter the speed limit:  100
Enter the recorded speed of the car:  131
You are speeding and your fine is $500.
```

Sample Session 3
```
Enter the speed limit:  100
Enter the recorded speed of the car:  120
You are speeding and your fine is $100.
```

Problem J1: Which Alien?

Problem Description
Canada Cosmos Control has received a report of another incident. They believe that an alien has illegally entered our space. A person who witnessed the appearance of the alien has come forward to describe the alien's appearance. It is your role within the CCC to determine which alien has arrived. There are only 3 alien species that we are aware of, described below:

- TroyMartian, who has at least 3 antenna and at most 4 eyes;
- VladSaturnian, who has at most 6 antenna and at least 2 eyes;
- GraemeMercurian, who has at most 2 antenna and at most 3 eyes.

Input Specification
The user will be prompted to enter two numbers. First, the user will be prompted to enter the number of antenna that the witness claimed to have seen on the alien. Second, the user will be prompted to enter the number of eyes seen on the alien.

Output Specification
The output will be the list of aliens who match the possible description given by the witness. If no aliens match the description, there is no output.

Sample Session 1 (with output shown in `text`, user input in *italics*)
```
How many antennas?
```
4
```
How many eyes?
```
5
```
VladSaturnian
```

Sample Session 2
```
How many antennas?
```
2
```
How many eyes?
```
3
```
VladSaturnian
GraemeMercurian
```

Sample Session 3
```
How many antennas?
```
8
```
How many eyes?
```
6

(Note: there is no output for Sample Session 3)