1.3 Project

- Math
- Scanner
- If else

HW12. Decode a hidden message

1.   Write a simple message and make a hidden message using alphabetic numbers.

Simple message has alphabets only

Example: Simple message

```
    "Hi Katie Have you finished computer science homework it is so fun if you want I can help you"
```

2. Create a secrete message using the map(function) below.

```
String simpleMessage ="Hi Katie Have you finished computer science homework it is so fun if you want I can help you";
         //              0         1         2         3         4         5         6         7         8         9
         //              01234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901
```

3. Send email to a friend with the simple message and the secrete code.

Example: 21 86 56 3 85 91

4. Use simpleMessage.charAt(21) and decode the secret message that you received.

5. Decode the email with title "??"

6. Make a tutorial video
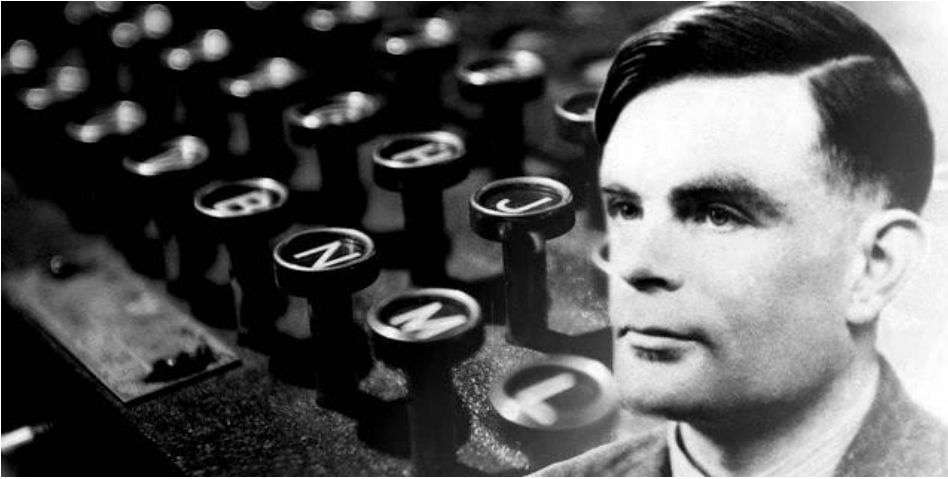
Example

```java
package homework;

public class HW12 {
    public static void main(String[] args) {
        String simpleMessage ="Hi Katie Have you finished computer science homework it is so fun if you want I can help you";
//                                  0         1         2         3         4         5         6         7         8         9
//                             012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901

        System.out.println("Hidden Message");

        System.out.println(simpleMessage.charAt(21));
        System.out.println(simpleMessage.charAt(86));
        System.out.println(simpleMessage.charAt(56));
        System.out.println(simpleMessage.charAt(3));
        System.out.println(simpleMessage.charAt(85));
        System.out.println(simpleMessage.charAt(91));

    }

}
```
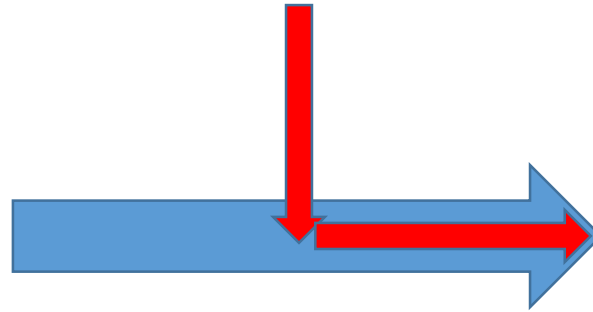
Dada Security

- Alan Turing
  - Decode German Enigma
- Imitation Game :Movie

Security in the Internet

(Optional) RSA Encryption Algorithm

- https://www.youtube.com/watch?v=luUeSnIYjJo

1.3 Math & Scanner

- Watch 5 videos. (Don't forget Video 15)
- https://www.youtube.com/watch?v=C3aWV0cTfpY&list=PLLAZ4kZ9d FpPpdR_9IQBUDLjYalvdrGGb&index=8

- Type and run every code in the videos.

Project 13: Make my Encryption/Decryption

- Scanner, Math, If else

```
Scanner keyboradInput = new Scanner(System.in)

System.out.print("Enter password :  ")

String password = keyboardInput.nextLine();

If (password.equals("my password")) {

        System.out.println(Math.sqrt(444-3))  //   =21

  } else {

  }
```

Project 13: Make my Encryption/Decryption

- Encryption/Decryption function

Example

```
String simpleMessage ="Hi Katie Have you finished computer science homework it is so fun if you want I can help you";
           //           0         1           2          3          4          5           6          7          8          9
           //           01234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901
```

Example: 21 86 56 3 85 91

If encryption function , $y = x^2 + 3$,

System.out.println(Math.pow(21,2)+3) // =444

System.out.println(Math.pow(86,2)+3) // = 7399

…

Decryption function should be $x = \sqrt{y - 3}$

System.out.println(Math.sqrt(444-3)) // =21

System.out.println(Math.sqrt(7399-3)) // = 86

Example

```java
1  package project;
2
3  import java.util.Scanner;
4  public class Proj13 {
5
6      public static void main(String[] args) {
7          // TODO Auto-generated method stub
8          Scanner keyboardInput = new Scanner(System.in);
9          System.out.print("Enter passwerd: ");
10         String password = keyboardInput.nextLine();
11
12         if (password.contentEquals("ilovecs")) {
13
14             System.out.println(Math.pow(21, 2) +3); // Encryption
15             System.out.println(Math.sqrt(444-3));   // Decryption
16         } else {
17             System.out.println("Incorrect password");
18         }
19
20     }
21
22 }
23
```

Console ✕

<terminated> Proj13 [Java Application] C:₩Program Files₩AdoptOpenJDK₩jdk-11.0.4.11-hotspot₩
Enter passwerd: ilovecs
444.0
21.0