

AP Computer Science A (JAVA)

- Collegeboard does not allow school to teach AP Computer A (AP CSP) and AP Computer Science Principle (AP CSP)
- This class is AP Computer A (AP CSP)
- Students may take AP CSP test personally

- AP CSP

- 1 page presentation
- Video of a program
- Paper test

Assessment	Timing	Percentage of Total AP Score
Explore Performance Task	8 hours	16%
Create Performance Task	12 hours	24%
End-of-Course Exam	2 hours	60%

History of Java

- Java was originally developed by James Gosling at Sun Microsystems and released in 1995
- OO Program
- Good for software engineering



HW11 Key

```
1 package homework;
2
3 public class HW11 {
4
5     public static void main(String[] args) {
6         int x = 10;
7         int y = 20;
8         int temp = 0;
9
10        System.out.println("Let me show you how to swap two numbers, X and Y");
11        System.out.println("X=" + x);
12        System.out.println("Y=" + y);
13        System.out.println("Temp=" + temp);
14
15        System.out.println("1. Assign X to Temp");
16        temp = x;
17        System.out.println("X=" + x);
18        System.out.println("Y=" + y);
19        System.out.println("Temp=" + temp);
20
21        System.out.println("2. Assign Y to X");
22        x = y ;
23        System.out.println("X=" + x);
24        System.out.println("Y=" + y);
25        System.out.println("Temp=" + temp);
26
27        System.out.println("3. Assign Temp to Y");
28        y = temp;
29        System.out.println("X=" + x);
30        System.out.println("Y=" + y);
31        System.out.println("Temp=" + temp);
32
33        x = 10;
34        y = 20;
35        temp = 0;
36        // We can also print X,Y and Temp in one line
37        System.out.println("Let me show you how to swap two numbers, X and Y");
38        System.out.println("X=" + x + " " + "Y=" + y + " " + "Temp=" + temp);
39        System.out.println("1. Assign X to Temp");
40        temp = x;
41        System.out.println("X=" + x + " " + "Y=" + y + " " + "Temp=" + temp);
42        System.out.println("2. Assign Y to X");
43        x = y ;
44        System.out.println("X=" + x + " " + "Y=" + y + " " + "Temp=" + temp);
45
46        System.out.println("3. Assign Temp to Y");
47        y = temp;
48        System.out.println("X=" + x + " " + "Y=" + y + " " + "Temp=" + temp);
49    }
50 }
```

HW11

- Assign x to temp

~~x = temp~~

temp = x ()

- x=10 y=20 temp = 0

System.out.println("X=" + x + " " + "Y=" + y + "Temp=" + temp)

=> Output :

- int x=10;

- int : <- one of

Primitive types

Type	Size (bits)	Minimum	Maximum	Example
<i>byte</i>	8	-2^7	$2^7 - 1$	<i>byte b = 100;</i>
<i>short</i>	16	-2^{15}	$2^{15} - 1$	<i>short s = 30_000;</i>
	32	-2^{31}	$2^{31} - 1$	<i>int i = 100_000_000;</i>
<i>long</i>	64	-2^{63}	$2^{63} - 1$	<i>long l = 100_000_000_000_000;</i>
<i>float</i>	32	-2^{-149}	$(2 - 2^{-23}) \cdot 2^{127}$	<i>float f = 1.456f;</i>
	64	-2^{-1074}	$(2 - 2^{-52}) \cdot 2^{1023}$	<i>double f = 1.456789012345678;</i>
	16	0	$2^{16} - 1$	<i>char c = 'c';</i>
	1	-	-	<i>boolean b = true;</i>

1.2 Primitives

- int, double, char, boolean...

- int :

- double: numbers with 12.345

- char : a such as 'A', '3', '?'

- boolean :

- Watch 3 videos

- https://www.youtube.com/watch?v=TVSj_N2Rmfo&list=PLLAZ4kZ9dFpPpdR_9IQBUDLjYalvdrGGb&index=5

- Type and run every code in the videos.



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  
                        //      012345678901234567890123456789012345678901234567890123456789012345678901
```

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

```
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
        //           01234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901

        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));

    }
}
```