

Name (PRINT): _____

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Class	Method	Brief explanation	Example
String			
<code>String a = "HELLO"; String b = "hello";</code>			
	<code>equals()</code>	Determine if two strings are the same or not. Returns a boolean value.	<code>a.equals(b)</code> returns false
	<code>charAt()</code>	Returns the character at a specific position within a string.	<code>a.charAt(3)</code> returns 'L'
	<code>length()</code>	Returns the length of a string.	<code>a.length()</code> returns 5
	<code>substring()</code>	Returns a substring beginning at first argument and ending at the second argument -1	<code>a.substring(0,3)</code> returns "HEL"
	<code>toUpperCase()</code>	Returns a string in uppercase	<code>b.toUpperCase()</code> returns "HELLO"
	<code>toLowerCase()</code>	Returns a string in lowercase	<code>a.toLowerCase()</code> returns "hello"
Scanner			
Create a scanner for System.in: <code>Scanner kb = new Scanner(System.in);</code>			
	<code>next()</code>	Returns the next token from the scanner as a String value.	<code>kb.next()</code>
	<code>nextInt()</code>	Returns the next token from the scanner as an int value.	<code>kb.nextInt()</code>
	<code>nextLine()</code>	Returns the next line from the scanner as a String value.	<code>kb.nextLine()</code>

1. Consider Program1 below. Show the output to the right of the various System.out.println() statements.

```
public class Program1{
    public static void main(String args[]){
        System.out.println( 89 % 10 * 10);
        System.out.println( 2345 / 10 / 10 );
        System.out.println( (99 == 99)?"xx":"yy" );
        int sum = 0;
        int m = 0;
        while (m > 0) {
            sum = sum + m;
            m++;
        } ;
        System.out.println( sum );
        String s = "3456";
        String sr= "";
        for (int i=s.length()-1; i>=0; i--){
            sr = sr+s.charAt(i);
        }
        System.out.println(sr);
        sr= "";
        for (int i=0; i<s.length(); i++){
            sr = sr+s.charAt(i);
        }
        System.out.println(sr);
        int k=0;
        for ( m=0; m < 4; m++) {
            for (int n=0; n < m; n++) {
                k++;
            }
        }
        System.out.println( k );
        int number = 234;
        sum = 0;
        while (number > 0) {
            sum = sum + number;
            number = number / 10;
        }
        System.out.println(sum);
        System.out.println( "99+1"+99+1);
        System.out.println( 50 % 36 % 12);
    }
}
```

2. Complete the following program that obtains exactly 5 words from the user and displays each word in lowercase and with each vowel (a, e, i, o, u) replaced by x.

Examples :

If the user enters the word Hello then the program displays hxllx.

If the user entered Exit the program would display xxxt.

Your program must use a loop; each time the loop executes one word is processed.

```
import java.util.Scanner;
public class Program2{
    public static void main (String[] args){
        Scanner kb = new Scanner(System.in);
```

```
import java.util.Scanner;
public class    Program2
{ public static void main (String[] args)
    {
        Scanner kb = new Scanner(System.in);
        System.out.println("Enter 5 words");

        for (int i=0;i<5;i++){

            String word = kb.next().toLowerCase();

            String newWord = "";
            for (int j=0;j<word.length();j++){
                if ( word.charAt(j)=='a' || word.charAt(j)=='e'
                    ||word.charAt(j)=='i' || word.charAt(j)=='o'
                    ||word.charAt(j)=='u')
                    newWord+='x';
                else newWord+=word.charAt(j);
            }

            System.out.println(newWord);
        }
    }
}
```

3. Complete the Java program below so it

- prompts the user for a course number of the form xxx-9999 where xxx is the department code
- displays the name of the department (see table below)
- if the department code is not in the table the program displays
error: department not found

Course number of the form xxx-9999 where xxx is the Department code	
Department code	Department name
ACS	Applied Computer Science
ENG	English
PHY	Physics
ECO	Economics

```
import java.util.Scanner;
public class    Program3 {
    public static void main (String[] args){
        Scanner kb = new Scanner(System.in);
```

```
import java.util.Scanner;
public class Program3 {
    public static void main (String[] args){
        Scanner kb = new Scanner(System.in);
        System.out.println("Enter a course number");
        String courseNo = kb.next();
        String result = "";
        switch (courseNo.substring(0,3)){
            case "ACS": result = "Applied Computer Science";
                break;
            case "ENG":result = "English";
                break;
            case "PHY":result = "Physics";
                break;
            case "ECO":result = "Economics";
                break;
            default: result = "error: department not found";
        }
        System.out.println(result);
    }
}
```

4. Complete the following program that prompts the user for a list of integers (ended by a zero value) and displays the average of those numbers.

Examples:

if the user enters 5 10 15 20 0 then the program displays

The average of your 4 integers is 12.5

if the user enters 0 then the program displays

No average shown – you entered no values

```
import java.util.Scanner;
public class Program4{
    public static void main (String[] args) {
        Scanner kb = new Scanner(System.in);
```

```
import java.util.Scanner;
public class Program4{
    public static void main (String[] args) {
        Scanner kb = new Scanner(System.in);
        System.out.println("Enter a list of integers");
        int number = kb.nextInt();
        int count = 0;
        int sum = 0;
        while (number != 0) {
            sum += number;
            count++;
            number = kb.nextInt();
        }
        if (count==0){
            System.out.println(
                "No average shown - you entered no values");
        }
        else{
            System.out.println("The average of your "+count
                +" integers is "+(sum+0.0)/count);
        }
    }
}
```