	<b>FAKULTAS TEKNIK</b> <b>UNIVERSITAS NEGERI YOGYAKARTA</b>			
	<b>LAB SHEET PEMROGRAMAN 2</b>			
	Semester 2	APPLETS		4 x 50 mnt
	No. LST/EKA/PTI208/02	Revisi : 02	Maret 2010	Hal 1 dari 5

## A. Kompetensi

Setelah mengikuti mata kuliah ini, mahasiswa diharapkan memiliki kemampuan membuat applet dan grafik.

## B. Dasar Teori

### ✚ Java applets

The applet is responsible for the graphical components and user interaction in a rectangular section of the Web browser's screen. An applet object has many instance variables and methods. Most of these are defined in the `JApplet` class. To access these definitions, your program should import `javax.applet.JApplet` and `java.awt.*`.

- Extending the `JApplet` class.

```
import javax.swing.JApplet;
import java.awt.*;
public class Hello extends JApplet
.....
.....
```

- The `setBackground()` method

Use the following method of the `Graphics` object to change the pen color:

```
setColor( Color.something )
```

For example, if `gr` is a reference to the `Graphics` object, then this changes the pen color to blue:

```
gr.setColor( Color.blue );
```

Several million colors are possible, but for now, use the pre-defined colors:

```
Color.red      Color.orange   Color.yellow   Color.green
Color.blue     Color.magenta  Color.white    Color.black
Color.gray     Color.darkGray Color.lightGray Color.pink
Color.cyan
```

- The `paint()` method.

The class `JApplet` has a `paint()` method, but that method does little. The Web browser calls the `paint()` method when it needs to "paint" the section of the monitor screen devoted to an applet. Each applet that you write has its own `paint()` method.

```
public void paint ( Graphics gr )
{
.....
}
```

Dibuat oleh : Herman DS	Dilarang memperbanyak sebagian atau seluruh isi dokumen tanpa ijin tertulis dari Fakultas Teknik Universitas Negeri Yogyakarta	Diperiksa oleh :
----------------------------	--	------------------

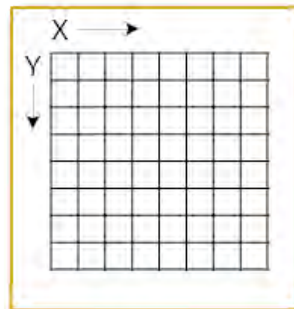


- The Graphics class.

Methods of the Graphics class:

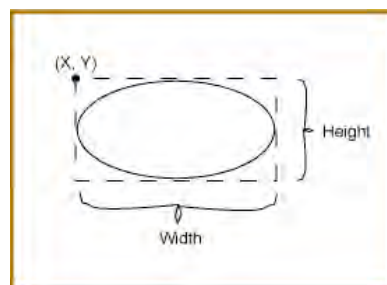
- `drawString(String str, int x, int y)`

- `str` : a String to place into the drawing area
- `x` : horizontal distance in pixels from the left edge
- `y` : vertical distance in pixels from the top edge




The `x` and `y` parameters tell where to place the string within the applet's area. This is like graph paper, except the (0,0) location is the upper left corner (of the applet's drawing area, not of the full screen). Increasing `y` values move *down* the area. The location (`x`, `y`) is where to place the lower left part of the first character of the string.

- `drawOval(int X, int Y, int width, int height)`

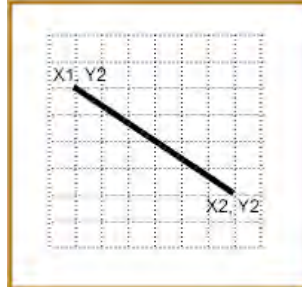


This draws a circle or an oval that fits within the rectangle specified by the `X`, `Y`, `width` and `height` arguments. The oval is drawn inside a rectangle whose upper left hand corner is at (`X`, `Y`), and whose `width` and `height` are as specified. The measurements are in terms of pixels. The (`X`, `Y`) position is relative to the upper left hand corner of the applet's drawing area. It gives the location of the upper left corner of a rectangle. The `width` and `height` arguments give the horizontal and vertical size of the rectangle. The `drawOval()` method draws the oval that fits inside the rectangle. (It does not actually draw the rectangle.)

You *do not* give the method the center and radius of the circle you want.

	<b>FAKULTAS TEKNIK UNIVERSITAS NEGERI YOGYAKARTA</b>			
	<b>LAB SHEET PEMROGRAMAN 2</b>			
	Semester 2	APPLETS		4 x 50 mnt
	No. LST/EKA/PTI208/02	Revisi : 02	Maret 2010	Hal 3 dari 5

- o `drawLine(int x1, int y1, int x2, int y2)`



This draws a line from (x1, y1) to (x2, y2) in the drawing area using the current pen color. As usual, the point (0,0) is the upper left corner of the drawing area. It doesn't matter in which direction you draw the line. The end and the start of the line could be reversed.

- o `drawRect(int x, int y, int width, int height)`

It draws the outline of a rectangle using the current pen color. The left and right edges of the rectangle are at x and x + width respectively. The top and bottom edges of the rectangle are at y and y + height respectively.

This method is also used to draw a square. This applet draws a rectangle around the entire drawing area, then puts another rectangle in the center.

### ✚ Running an JApplet

An applet does not have a `main()` method and so cannot be started as an application. For the applet to do anything, some other application must be running and call the applet's methods. A Web browser can do this. A Web page is a text file that a Web browser can display. The browser follows instructions that are part of the text to nicely format the page. Here is a tiny Web page that asks for the applet `Hello`:


```
<html>
<body>
<applet code="Hello.class" width="300" height="150">
</applet>
</body>
</html>
```

This tells the browser to run the applet `Hello.class`, and to use a 300 pixels wide and 150 high drawing area. Quote marks are required around all the values, including the numbers, but usually web browsers will work if you forget them. You can create this Web page by typing the above characters into a text editor (or copy and paste them). Then save the file as `Hello.html` in the same directory that has `Hello.class`.

### C. Alat/ Bahan

1. Lab. Sheet Pemrograman Java 2
2. PC / Laptop with OS installed

Dibuat oleh : Herman DS	Dilarang memperbanyak sebagian atau seluruh isi dokumen tanpa ijin tertulis dari Fakultas Teknik Universitas Negeri Yogyakarta	Diperiksa oleh :
----------------------------	---	------------------

	<b>FAKULTAS TEKNIK UNIVERSITAS NEGERI YOGYAKARTA</b>			
	<b>LAB SHEET PEMROGRAMAN 2</b>			
	Semester 2	APPLETS		4 x 50 mnt
	No. LST/EKA/PTI208/02	Revisi : 02	Maret 2010	Hal 4 dari 5

3. JDK 1.5 or latest
4. J-Creator or text editor

#### D. Langkah Kerja

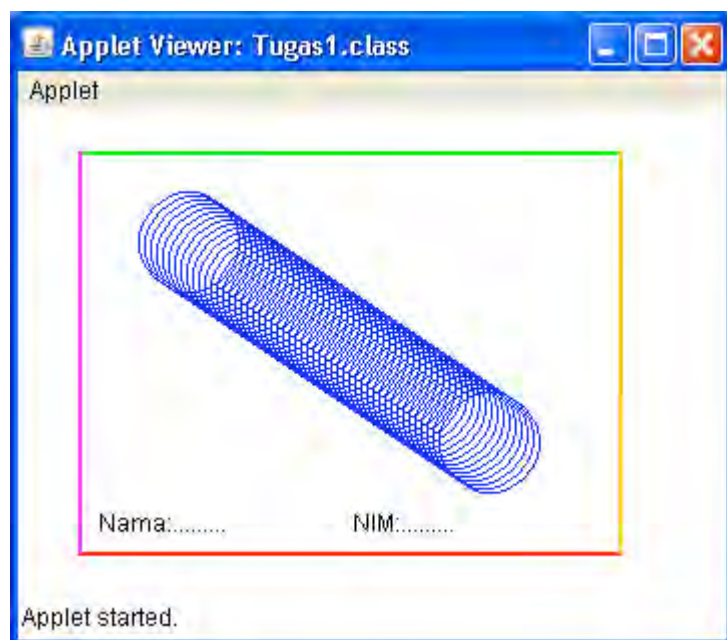
1. Baca dan pahami dasar teori di atas.
2. Lakukan kompilasi dan eksekusi terhadap contoh-contoh source code atau program yang ada di dasar teori dan LAMPIRAN.
3. Kerjakan tugas individu di bawah.

#### E. Tugas Individu


Buatlah sebuah applet yang menampilkan:

- 4 buah garis berbeda warna (merah, hijau, orange dan magenta).  
Ketebalan garis adalah 2x tebal garis pada umumnya.
- 50 buah lingkaran berwarna biru dengan kriteria:
  - ✓ Diameter semua lingkaran adalah sama
  - ✓ Sumbu X memiliki selisih 3 pixel dari Sumbu X sebelumnya.
  - ✓ Sumbu Y memiliki selisih 2 pixel dari Sumbu Y sebelumnya.
- Tambahkan Nama dan NIM anda masing-masing

Hasil susunan berbentuk seperti gambar di bawah ini (*boleh menggunakan looping*).



Dibuat oleh : Herman DS	Dilarang memperbanyak sebagian atau seluruh isi dokumen tanpa ijin tertulis dari Fakultas Teknik Universitas Negeri Yogyakarta	Diperiksa oleh :
----------------------------	---	------------------

	<b>FAKULTAS TEKNIK UNIVERSITAS NEGERI YOGYAKARTA</b>			
	<b>LAB SHEET PEMROGRAMAN 2</b>			
	Semester 2	APPLETS		4 x 50 mnt
	No. LST/EKA/PTI208/02	Revisi : 02	Maret 2010	Hal 5 dari 5

## F. Lampiran

- **CH 36, 37, dan 38** (Introduction to Computer Science using Java, Java 5.0 version, January 2006, Bradley Kjell, Central Connecticut State University <http://chortle.ccsu.edu/CS151/cs151java.html>)
- **Java™ How to Program, Sixth Edition**, H. M. Deitel - Deitel & Associates, Inc., P. J. Deitel - Deitel & Associates, Inc

Dibuat oleh : Herman DS	Dilarang memperbanyak sebagian atau seluruh isi dokumen tanpa ijin tertulis dari Fakultas Teknik Universitas Negeri Yogyakarta	Diperiksa oleh :
----------------------------	---	------------------