

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    tools:context=".MainActivity" >

    <ProgressBar
        android:id="@+id/progressBar1"
        style="?android:attr/progressBarStyle"
        android:layout_width="match_parent"
        android:layout_height="wrap_content" />

    <ProgressBar
        android:id="@+id/progressBar2"
        style="?android:attr/progressBarStyleHorizontal"
        android:layout_width="match_parent"
        android:layout_height="wrap_content" />

    <Button
        android:id="@+id/button1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="30%" />

    <Button
        android:id="@+id/button2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="60%" />

    <Button
        android:id="@+id/button3"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="100%" />
</LinearLayout>

```



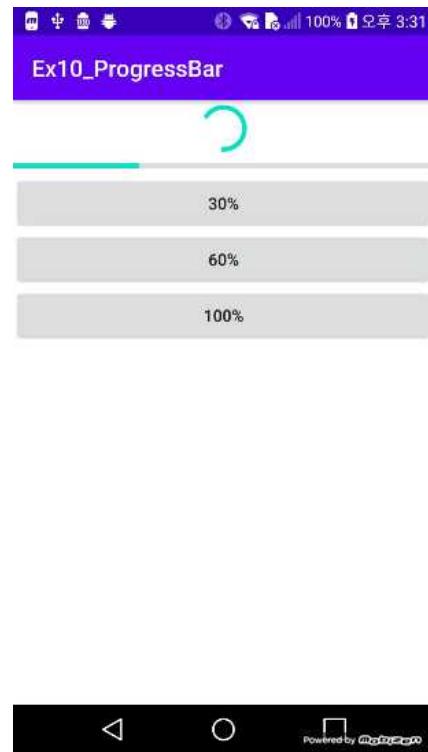
```

public class MainActivity extends AppCompatActivity {
    ProgressBar progressBar1, progressBar2;
    Button button1, button2, button3 ;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        progressBar1 = findViewById(R.id.progressBar1);
        progressBar2 = findViewById(R.id.progressBar2);
        button1 = findViewById(R.id.button1);
        button2 = findViewById(R.id.button2);
        button3 = findViewById(R.id.button3);

        button1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                progressBar2.setProgress(30);
            }
        });
        button2.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                progressBar2.setProgress(60);
            }
        });
        button3.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                progressBar2.setProgress(100);
            }
        });
    }
}

```



```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    tools:context=".MainActivity2">

    <ProgressBar
        android:id="@+id/progressBar3"
        style="?android:attr/progressBarStyleHorizontal"
        android:layout_marginTop="50dp"
        android:layout_width="match_parent"
        android:layout_height="wrap_content" />

    <Button
        android:id="@+id/button4"
        android:layout_marginTop="50dp"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="시작" />
</LinearLayout>

```



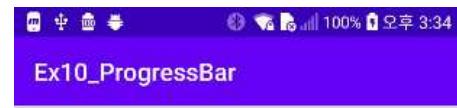
```

public class MainActivity2 extends AppCompatActivity {
    ProgressBar progressBar3;
    Button button4;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main2);
        progressBar3 = findViewById(R.id.progressBar3);
        button4 = findViewById(R.id.button4);

        /* 프로그래스바 , 시크바는 스레드 처리가 기본이다.
        // SystemClock.sleep(1000); 추가하는 순간 멈통이 된다.
        button4.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                for (int i=0; i<101; i++){
                    progressBar3.setProgress(i);
                    SystemClock.sleep(1000);
                }
            }
        });
        */

        // 스레드 처리
        button4.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                new Thread(new Runnable() {
                    @Override
                    public void run() {
                        for (int i=0; i<101; i++){
                            progressBar3.setProgress(i);
                            SystemClock.sleep(500);
                        }
                    }
                }).start();
            }
        });
    }
}

```



```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    tools:context=".MainActivity3">

    <TextView
        android:id="@+id/txt1"
        android:layout_marginTop="40dp"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:textSize="36sp"
        android:text="0%" />

    <ProgressBar
        android:id="@+id/progressBar4"
        style="?android:attr/progressBarStyleHorizontal"
        android:layout_width="match_parent"
        android:layout_height="wrap_content" />

    <TextView
        android:id="@+id/txt2"
        android:layout_marginTop="40dp"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:textSize="36sp"
        android:text="0%" />

    <ProgressBar
        android:id="@+id/progressBar5"
        style="?android:attr/progressBarStyleHorizontal"
        android:layout_width="match_parent"
        android:layout_height="wrap_content" />

    <Button
        android:id="@+id	btn1"
        android:layout_marginTop="40dp"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:text="시작" />
</LinearLayout>

```



```

public class MainActivity3 extends AppCompatActivity {
    TextView txt1, txt2;
    ProgressBar progressBar4, progressBar5;
    Button btn1;
    // 핸들러는 스레드에서 뷰를 수정, 변경할때 사용
    Handler handler = new Handler();
    int i = 0;
    int j = 0;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main3);
        txt1 = findViewById(R.id.txt1);
        txt2 = findViewById(R.id.txt2);
        progressBar4 = findViewById(R.id.progressBar4);
        progressBar5 = findViewById(R.id.progressBar5);
        btn1 = findViewById(R.id.btn1);
        btn1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                // 스레드를 처리 할때 뷰에 직접 데이터를 수정 할 수 없다. (전제조건)
                // handler를 이용해서 수정해야 된다.
                new Thread(new Runnable() {
                    @Override
                    public void run() {
                        for (i=0; i<10; i++){
                            // progressBar4.setProgress(i);
                            // txt1.setText(progressBar4.getProgress()+"%");
                            handler.post(new Runnable() {
                                @Override
                                public void run() {
                                    progressBar4.setProgress(i);
                                    txt1.setText(progressBar4.getProgress()+"%");
                                }
                            });
                            SystemClock.sleep(300);
                        }
                    }
                }).start();
                new Thread(new Runnable() {
                    @Override
                    public void run() {
                        for (j=0; j<10; j++){
                            progressBar5.setProgress(j);
                            handler.post(new Runnable() {
                                @Override
                                public void run() {
                                    progressBar5.setProgress(j);
                                    txt2.setText(progressBar5.getProgress()+"%");
                                }
                            });
                            SystemClock.sleep(200);
                        }
                    }
                }).start();
            }
        });
    }
}

```

