



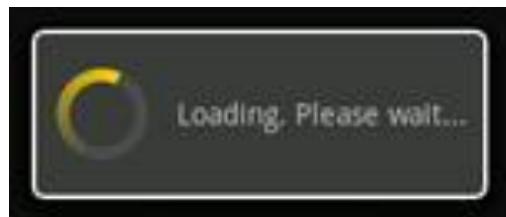
Progress Dialog 실습

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Progress Dialog

- Progress Dialog는 App 내에서 어떠한 작업이 수행될 때, 그 작업의 진행 상태를 시각적으로 보여주기 위해 사용하는 View Widget
- 다른 여러 종류의 UI 프레임 워크에서도 기본적으로 제공되는 요소이며, 어떤 프레임 워크에서든 “수치 값 또는 작업 진행 상태 표시”라는 공통적인 목적으로 사용됨
- 원형 또는 막대형 Progress Bar를 표시하는 Dialog로 Button을 추가해서 표현
- Progress Dialog의 예





Progress Dialog

- ProgressBar Widget 추가하고 구현하기
 - ProgressBar는 진행 상태를 표시함에 있어 2 가지 모드를 지원
 - 원형으로 보이는 Spinner와 막대형인 Horizontal 있음
 - 진행 정도를 알려면 막대형이 좋을 것 같고, 언제 끝날지 모른다면 원형 바를 선택

```
<ProgressBar
    android:id="@+id/progress2"
    style="@android:style/Widget.ProgressBar.Horizontal"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:progress="25" />
```



Progress Dialog



■ 메소드

■ setMessage()

- 사용자에게 알릴 메시지를 작성

■ setTitle()

- Dialog의 제목(title)을 작성

■ setProgressStyle()

- Dialog에 표시되는 Progress Bar의 형태를 지정
- STYLE_HORIZONTAL : 막대형 progress bar
- STYLE_SPINNER : 원형(spinning) progress bar

■ setMax()

- Progress bar의 maximum 값을 설정

■ getMax()

- Progress bar의 maximum 값을 반환 함



Progress Dialog



■ 메소드

■ getProgress()

- 현재의 진행 상태를 값(numbers)을 반환

■ show(Context context, CharSequence title, CharSequence message)

- Progress Dialog를 표시

■ incrementProgressBy(int diff)

- 매개변수를 주어지는 값의 차이를 progress bar에 적용



Progress Dialog

- Progress Dialog는 ProgressDialog.show() 메소드를 호출하는 것으로 열 수 있음

ProgressDialog dialog =

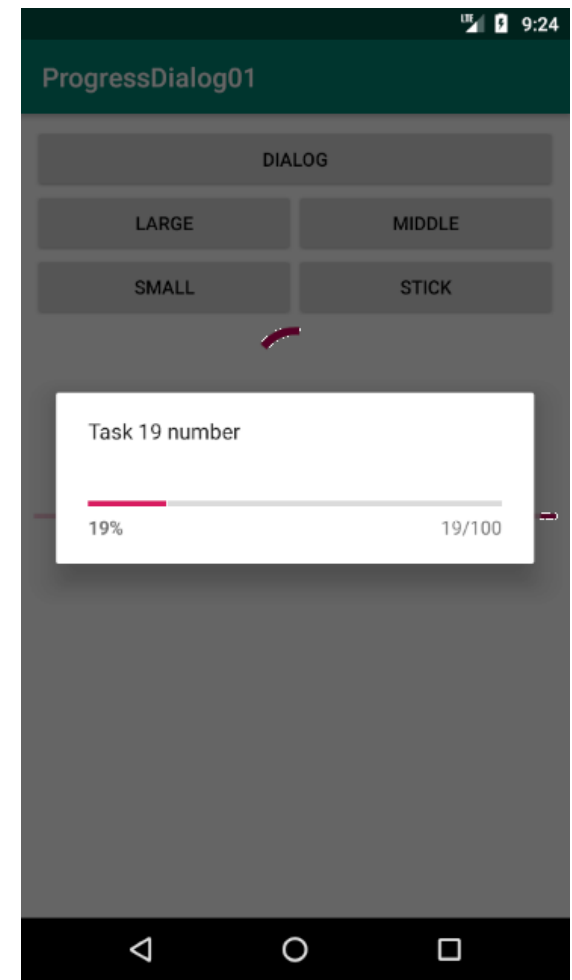
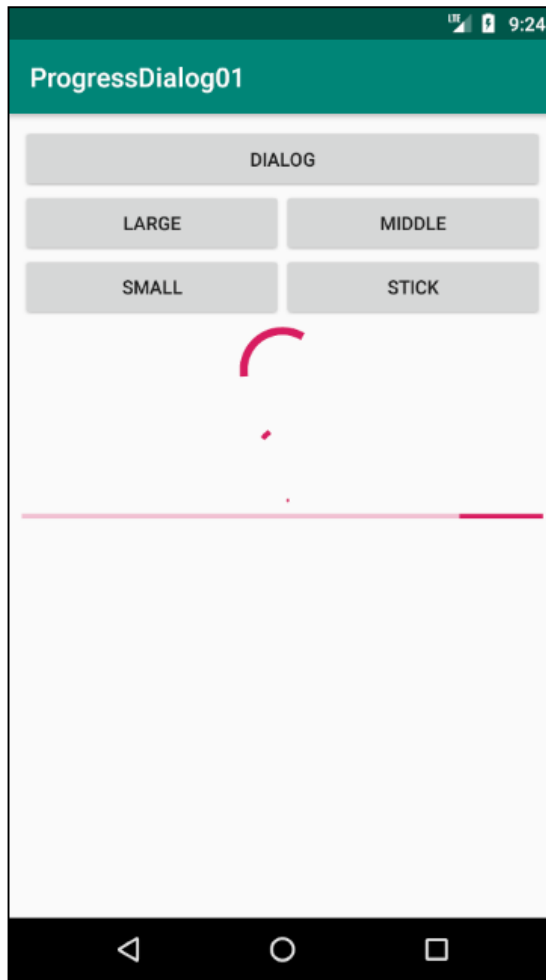
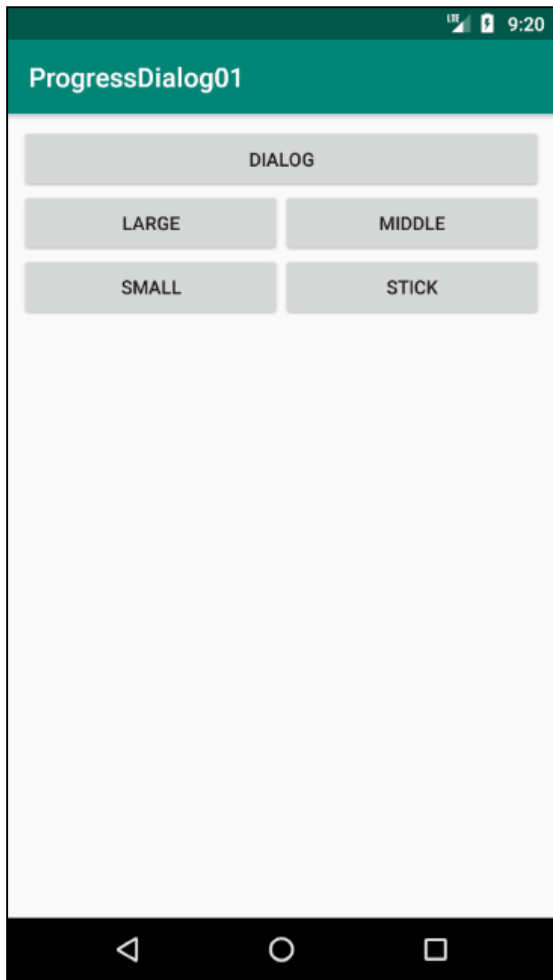
```
ProgressDialog.show(TestActivity.this, “로딩중”,  
    “로딩중. 잠시 기다려 주시기 바랍니다.”, true);
```

- 첫 번째 매개변수 : 애플리케이션의 컨텍스트
- 두 번째 매개변수 : 대화상자의 타이틀
- 세 번째 매개변수 : 대화상자에 표시할 메시지
- 네 번째 매개변수 : 작업의 끝을 가능할 수 있는가의 여부를 지정하는 것
- 가능할 수 없는 원형 프로그래스 바인 경우에는 true를, 가능할 수 있는 수평 프로그래스 바인 경우에는 false를 지정



ProgressDialog 예제 1

■ 다음과 같은 ProgressDialog 프로그램을 작성하여라





ProgressDialog 예제 1

■ 사용자 인터페이스

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="10dp"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/btnProgressDialog"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Dialog" />
```




ProgressDialog 예제 1

■ 사용자 인터페이스

```
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content">

    <Button
        android:id="@+id/btnProgressLarge"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:text="Large" />

    <Button
        android:id="@+id/btnProgressMid"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:text="Middle" />

</LinearLayout>
```



ProgressDialog 예제 1

■ 사용자 인터페이스

```
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content">

    <Button
        android:id="@+id/btnProgressSmall"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:text="Small" />
    <Button
        android:id="@+id/btnProgressStick"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:text="Stick" />
</LinearLayout>
```



ProgressDialog 예제 1



■ 사용자 인터페이스

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

```
<ProgressBar  
    android:id="@+id/progressBar2"  
    android:layout_width="match_parent"  
    android:layout_height="wrap_content" />
```

```
<ProgressBar  
    android:id="@+id/progressBar3"  
    style="?android:attr/progressBarStyleSmall"  
    android:layout_width="match_parent"  
    android:layout_height="wrap_content" />
```



ProgressDialog 예제 1

■ 사용자 인터페이스

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



ProgressDialog 예제 1

■ MainActivity.JAVA

```
public class MainActivity extends AppCompatActivity
    implements View.OnClickListener {

    private ProgressBar mProgressLarge;
    private ProgressBar mProgressMid;
    private ProgressBar mProgressSmall;
    private ProgressBar mProgressStick;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        Button ProgressDlg = findViewById(R.id.btnProgressDialog);
        Button mBtnLarge = findViewById(R.id.btnProgressLarge);
        Button mBtnMid = findViewById(R.id.btnProgressMid);
        Button mBtnSmall = findViewById(R.id.btnProgressSmall);
        Button mBtnStick = findViewById(R.id.btnProgressStick);
```



ProgressDialog 예제 1

■ MainActivity.JAVA

```
mProgressLarge = findViewById(R.id.progressBar1);  
mProgressMid = findViewById(R.id.progressBar2);  
mProgressSmall = findViewById(R.id.progressBar3);  
mProgressStick = findViewById(R.id.progressBar4);
```

// 클릭이벤트 설정

```
ProgressDialog.setOnClickListener(this);  
mBtnLarge.setOnClickListener(this); // 진행바 큰것  
mBtnMid.setOnClickListener(this); // 진행바 중간  
mBtnSmall.setOnClickListener(this); // 진행바 작은것  
mBtnStick.setOnClickListener(this); // 막대형 진행바
```

// 진행바를 숨긴다

```
mProgressLarge.setVisibility(ProgressBar.GONE);  
mProgressMid.setVisibility(ProgressBar.GONE); // 진행바 중간  
mProgressSmall.setVisibility(ProgressBar.GONE); // 진행바 작은것  
mProgressStick.setVisibility(ProgressBar.GONE); // 막대형 진행바
```

```
}
```



ProgressDialog 예제 1

■ MainActivity.JAVA

```
public void onClick(View v) {  
    switch (v.getId()) {  
        case R.id.btnProgressDialog:  
            AsyncTask<Integer, String, Integer> mProgressDlg =  
                new ProgressDialogSample(MainActivity.this).execute(100);  
            break;  
        case R.id.btnProgressLarge:  
            mProgressLarge.setVisibility(ProgressBar.VISIBLE);  
            mProgressLarge.setIndeterminate(true);  
            mProgressLarge.setMax(100);  
            break;  
        case R.id.btnProgressMid:  
            mProgressMid.setVisibility(ProgressBar.VISIBLE);  
            mProgressMid.setIndeterminate(true);  
            mProgressMid.setMax(100);  
            break;  
    }  
}
```



ProgressDialog 예제 1

■ MainActivity.JAVA

```
case R.id.btnProgressSmall:  
    mProgressSmall.setVisibility(ProgressBar.VISIBLE);  
    mProgressSmall.setIndeterminate(true);  
    mProgressSmall.setMax(100);  
    break;  
case R.id.btnProgressStick:  
    mProgressStick.setVisibility(ProgressBar.VISIBLE);  
    mProgressStick.setIndeterminate(true);  
    mProgressStick.setMax(100);  
    }  
}  
}
```




ProgressDialog 예제 1

■ ProgressDialogSample.JAVA

```
class ProgressDialogSample extends AsyncTask<Integer, String, Integer> {  
    private ProgressDialog mDlg;  
    private Context mContext;  
  
    public ProgressDialogSample(Context context) {  
        mContext = context;  
    }  
}
```



ProgressDialog 예제 1

■ ProgressDialogSample.JAVA

@Override

```
protected Integer doInBackground(Integer... integers) {  
    final int taskCnt = integers[0];  
    publishProgress("max", Integer.toString(taskCnt));  
  
    for (int i = 0; i < taskCnt; ++i) {  
        try {  
            Thread.sleep(100);  
        } catch (InterruptedException e) {  
            e.printStackTrace();  
        }  
        publishProgress("progress", Integer.toString(i),  
            "Task " + Integer.toString(i) + " number");  
    }  
    return taskCnt;  
}
```



ProgressDialog 예제 1

■ ProgressDialogSample.JAVA

@Override

```
protected void onPostExecute(Integer integer) {  
    mDlg.dismiss();  
    Toast.makeText(mContext, Integer.toString(integer) + " total sum",  
        Toast.LENGTH_SHORT).show();  
}
```

@Override

```
protected void onProgressUpdate(String... values) {  
    if (values[0].equals("progress")) {  
        mDlg.setProgress(Integer.parseInt(values[1]));  
        mDlg.setMessage(values[2]);  
    } else if (values[0].equals("max")) {  
        mDlg.setMax(Integer.parseInt(values[1]));  
    }  
}
```



ProgressDialog 예제 1

■ ProgressDialogSample.JAVA

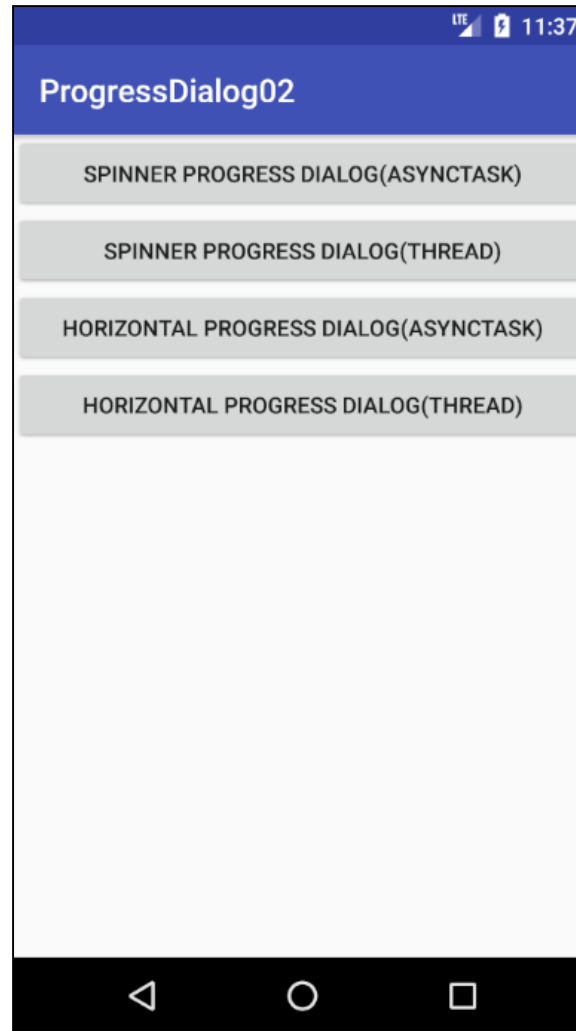
@Override

```
protected void onPreExecute() {  
    mDlg = new ProgressDialog(mContext);  
    mDlg.setProgressStyle(ProgressDialog.STYLE_HORIZONTAL);  
    mDlg.setMessage("Start");  
    mDlg.show();  
}  
}
```



ProgressDialog 예제 2

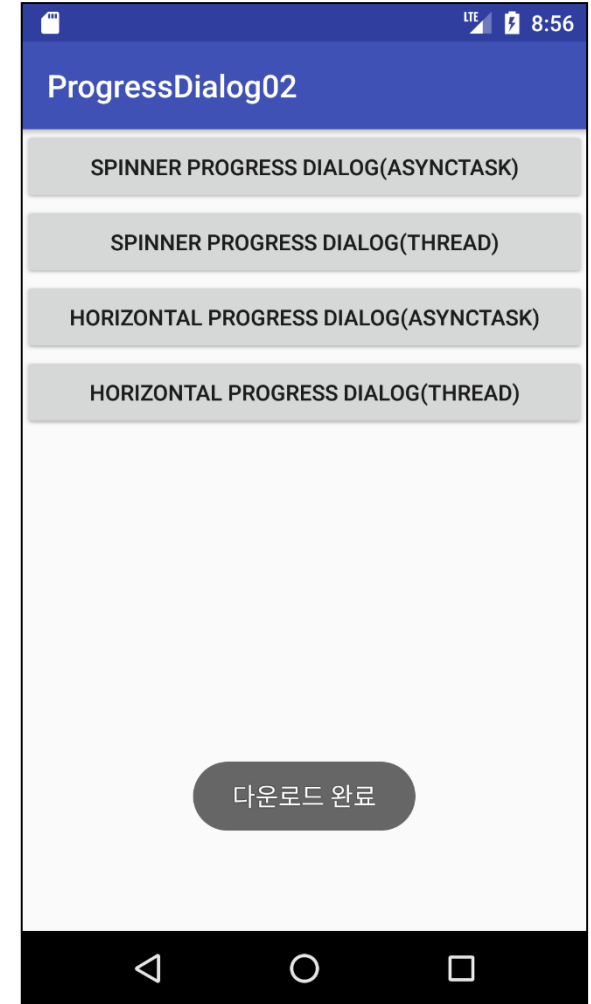
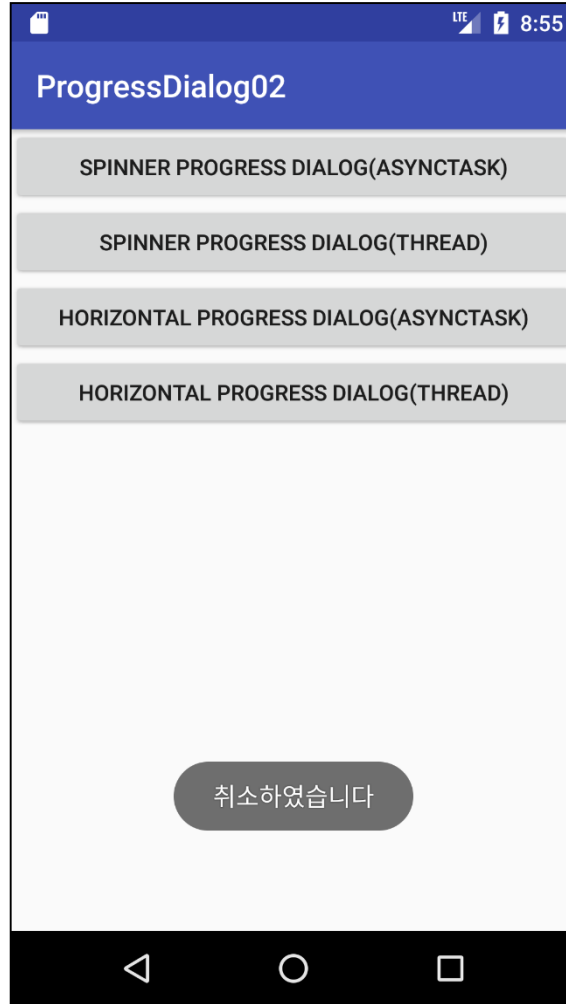
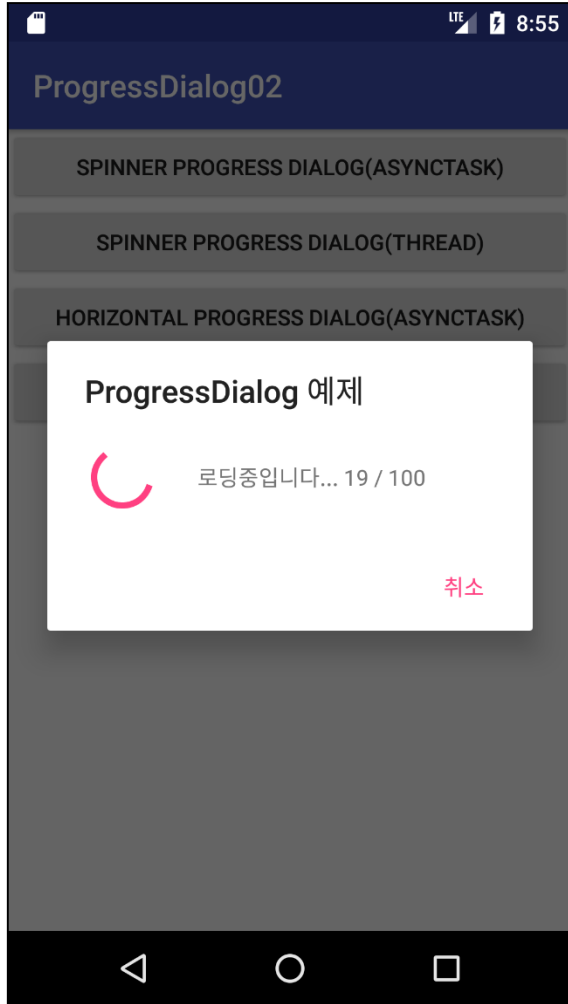
- 다음과 같은 ProgressDialog 프로그램을 작성하여라





ProgressDialog 예제 2

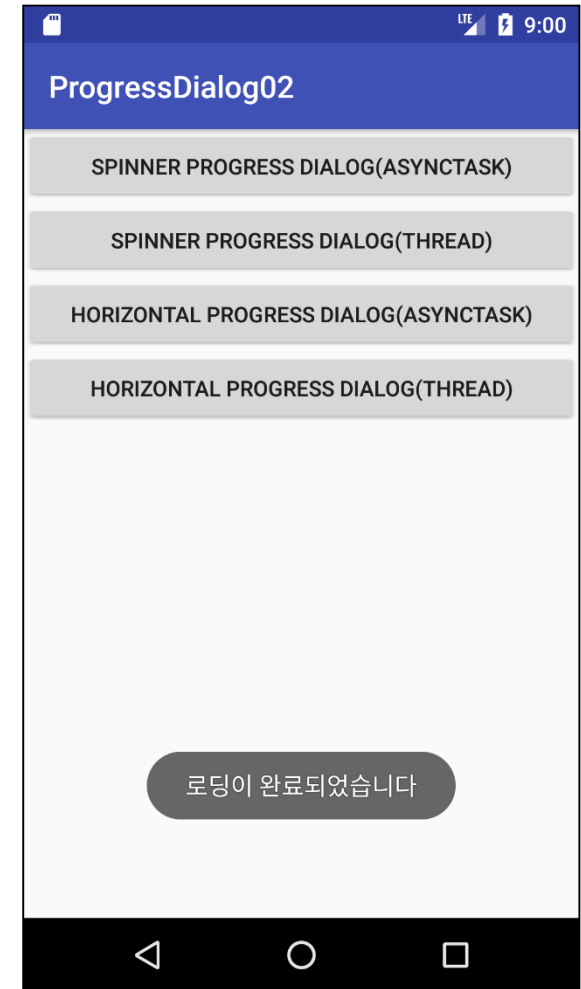
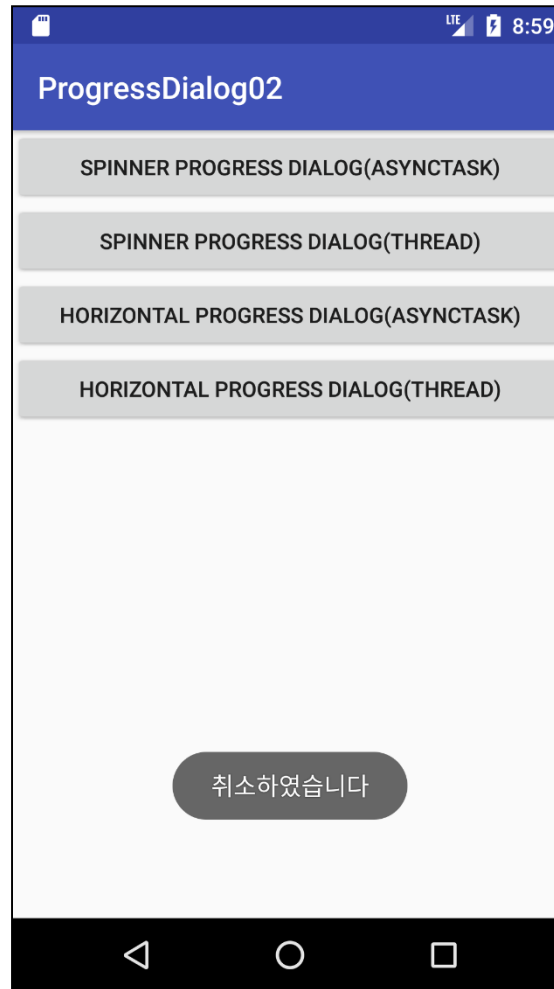
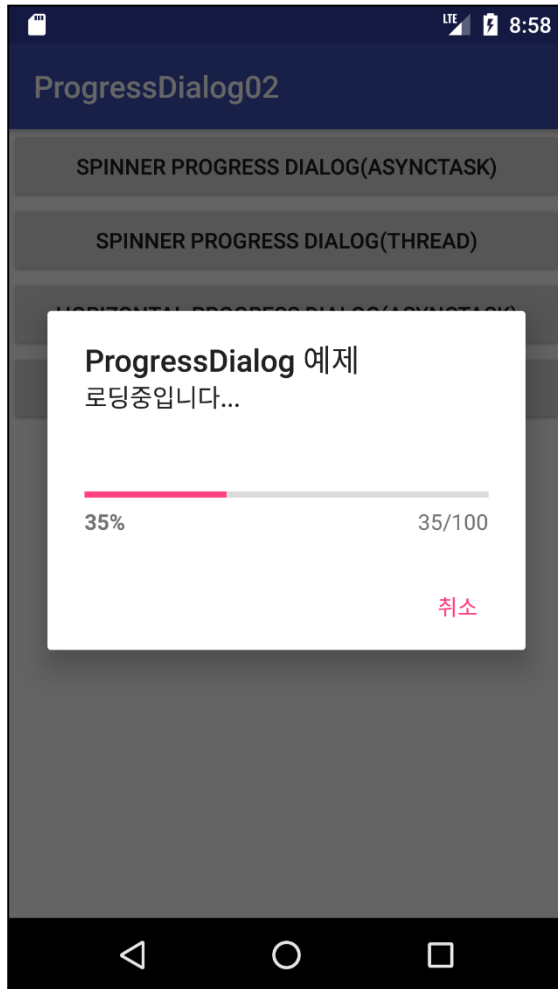
■ 실행 결과





ProgressDialog 예제 2

■ 실행 결과





ProgressDialog 예제 2

■ 사용자 인터페이스

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

    <Button
        android:id="@+id/button1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Spinner Progress Dialog(AsyncTask)" />

    <Button
        android:id="@+id/button2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Spinner Progress Dialog(Thread)" />
```




ProgressDialog 예제 2

■ 사용자 인터페이스

```
<Button
    android:id="@+id/button3"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Horizontal Progress Dialog(AsyncTask)" />

<Button
    android:id="@+id/button4"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Horizontal Progress Dialog(Thread)" />
</LinearLayout>
```



ProgressDialog 예제 2

```
public class MainActivity extends AppCompatActivity
                                   implements View.OnClickListener {

    ProgressDialog dialog;
    static SpinnerTask task;
    SpinnerThread thread1;
    static HorizonTask task1;
    Thread thread;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Button button1 = findViewById(R.id.button1);
        Button button2 = findViewById(R.id.button2);
        Button button3 = findViewById(R.id.button3);
        Button button4 = findViewById(R.id.button4);
        button1.setOnClickListener(this);
        button2.setOnClickListener(this);
        button3.setOnClickListener(this);
        button4.setOnClickListener(this);
    }
}
```



ProgressDialog 예제 2

■ MainActivity.JAVA

@Override

```
public void onClick(View view) {  
    switch (view.getId()) {  
        case R.id.button1:  
            task = new SpinnerTask(this);  
            task.execute();  
            break;  
        case R.id.button2:  
            dialog = dialogshow(this, ProgressDialog.STYLE_SPINNER);  
            dialog.setButton(DialogInterface.BUTTON_NEGATIVE, "취소",  
                             new DialogInterface.OnClickListener() {  
@Override  
                public void onClick(DialogInterface dialogInterface, int i) {  
                    Toast.makeText(getApplicationContext(), "취소하였습니다",  
                                   Toast.LENGTH_SHORT).show();  
                    thread1.interrupt();  
                }  
            });  
    }  
});
```




ProgressDialog 예제 2

■ MainActivity.JAVA

```
        dialog.show();
        HorizonThread thread2 = new HorizonThread(this, dialog);
        thread = new Thread(thread2);
        thread.start();
    }
}

public static ProgressDialog dialogshow(final Context context, int type) {
    ProgressDialog dialog = new ProgressDialog(context);
    dialog.setProgressStyle(type);
    dialog.setMax(100);
    dialog.setTitle("ProgressDialog 예제");
    dialog.setMessage("로딩중입니다...");
    dialog.setCancelable(false);
    return dialog;
}
}
```



ProgressDialog 예제 2

```
public class SpinnerTask extends AsyncTask<Void, Integer, Void> {
    Context context;
    ProgressDialog dialog;
    public SpinnerTask(Context context) {
        this.context = context;
    }
    @Override
    protected void onPreExecute() {
        dialog = MainActivity.dialogshow(context, ProgressDialog.STYLE_SPINNER);
        dialog.setButton(DialogInterface.BUTTON_NEGATIVE, "취소",
            new DialogInterface.OnClickListener() {
                @Override
                public void onClick(DialogInterface dialogInterface, int i) {
                    Toast.makeText(context, "취소하였습니다",
                        Toast.LENGTH_SHORT).show();
                    MainActivity.task.cancel(true);
                }
            });
        dialog.show();
    }
}
```



ProgressDialog 예제 2

■ SpinnerTask.JAVA

@Override

```
protected Void doInBackground(Void... voids) {  
    try {  
        int i = 0;  
        while (!isCancelled() && i < dialog.getMax()) {  
            Thread.sleep(100);  
            i++;  
            publishProgress(i);  
        }  
    } catch (InterruptedException e) {  
        e.printStackTrace();  
    }  
    return null;  
}
```



ProgressDialog 예제 2

■ SpinnerTask.JAVA

@Override

```
protected void onProgressUpdate(Integer... values) {  
    dialog.setMessage("로딩중입니다... " + values[0] + " / " + dialog.getMax());  
    super.onProgressUpdate(values);  
}
```

@Override

```
protected void onPostExecute(Void aVoid) {  
    Toast.makeText(context, "다운로드 완료", Toast.LENGTH_SHORT).show();  
    dialog.dismiss();  
    super.onPostExecute(aVoid);  
}  
}
```




ProgressDialog 예제 2

■ SpinnerThread.JAVA

```
public class SpinnerThread extends Thread {
    Context context;
    ProgressDialog dialog;
    Handler handler = new Handler();

    public SpinnerThread(Context context, ProgressDialog dialog){
        this.context = context;
        this.dialog = dialog;
    }

    @Override
    public void run() {
        super.run();
        try {
            int i = 0;
            while (!Thread.currentThread().isInterrupted() && i <= dialog.getMax()){
                Thread.sleep(100);
            }
        }
    }
}
```



ProgressDialog 예제 2

■ SpinnerThread.JAVA

```
final String msg = "로딩중입니다... " + ++i + " / " + dialog.getMax();
final int finall = i;
handler.post(new Runnable() {
    @Override
    public void run() {
        dialog.setMessage(msg);
        if (finall == dialog.getMax())
            Toast.makeText(context, "다운로드 완료",
                           Toast.LENGTH_SHORT).show();
    }
});
dialog.dismiss();
} catch (InterruptedException e) {
    e.printStackTrace();
}
}
```



ProgressDialog 예제 2



```
public class HorizonTask extends AsyncTask<Void, Integer, Void> {
    Context context;
    ProgressDialog dialog;
    public HorizonTask(Context context) {
        this.context = context;
    }
    @Override
    protected void onPreExecute() {
        dialog = MainActivity.dialogshow(context, ProgressDialog.STYLE_HORIZONTAL);
        dialog.setButton(DialogInterface.BUTTON_NEGATIVE, "취소",
            new DialogInterface.OnClickListener() {
                @Override
                public void onClick(DialogInterface dialogInterface, int i) {
                    Toast.makeText(context, "취소하였습니다",
                        Toast.LENGTH_SHORT).show();
                    MainActivity.task1.cancel(true);
                }
            });
        dialog.show();
    }
}
```



ProgressDialog 예제 2

■ HorizonTask.JAVA

@Override

```
protected Void doInBackground(Void... voids) {  
    try {  
        int i = 0;  
        while (!isCancelled() && i <= dialog.getMax() / 5) {  
            publishProgress(i * 5);  
            Thread.sleep(200);  
            i++;  
        }  
    } catch (InterruptedException e) {  
        e.printStackTrace();  
    }  
    return null;  
}
```



ProgressDialog 예제 2

■ HorizonTask.JAVA

@Override

```
protected void onProgressUpdate(Integer... values) {  
    super.onProgressUpdate(values);  
    dialog.setProgress(values[0]);  
}
```

@Override

```
protected void onPostExecute(Void aVoid) {  
    Toast.makeText(context, "로딩이 완료되었습니다",  
                    Toast.LENGTH_SHORT).show();  
  
    dialog.dismiss();  
    super.onPostExecute(aVoid);  
}  
}
```



ProgressDialog 예제 2



■ HorizonThread.JAVA

```
public class HorizonThread implements Runnable {
    Context context;
    ProgressDialog dialog;
    Handler handler = new Handler();

    public HorizonThread(Context context, ProgressDialog dialog) {
        this.context = context;
        this.dialog = dialog;
    }

    @Override
    public void run() {
        try {
            int i = 0;
            while (!Thread.currentThread().isInterrupted() && i <= dialog.getMax() / 5) {
                Thread.sleep(200);
                i++;
            }
            final int finall = i;
        }
    }
}
```



ProgressDialog 예제 2

■ HorizonThread.JAVA

```
handler.post(new Runnable() {
    @Override
    public void run() {
        dialog.setProgress(finall * 5);
        if (finall == dialog.getMax() / 5)
            Toast.makeText(context, "로딩이 완료되었습니다",
                            Toast.LENGTH_SHORT).show();
    }
});
dialog.dismiss();
} catch (InterruptedException e) {
    e.printStackTrace();
}
}
```



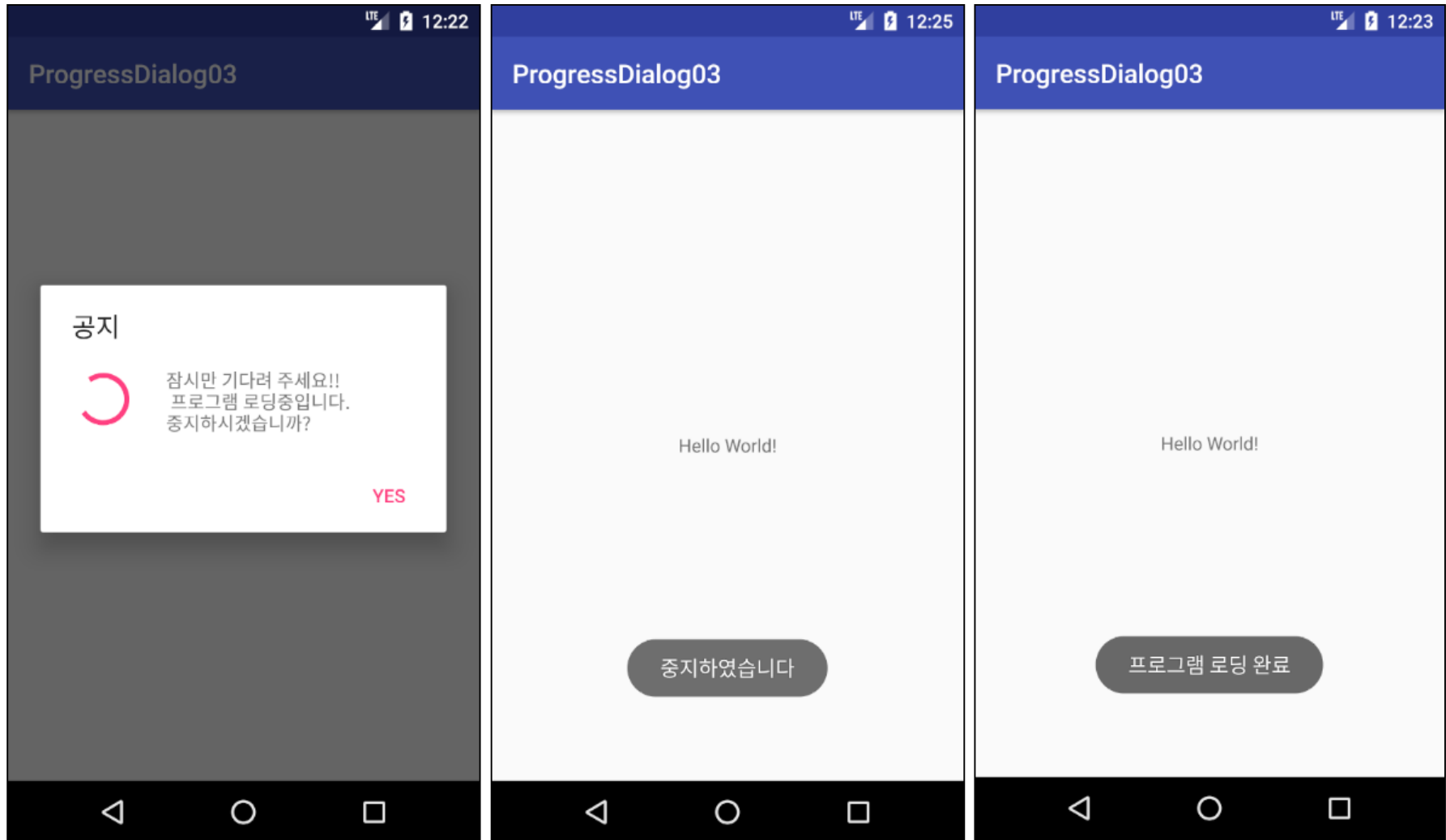
ProgressDialog 예제 2

- 진행 다이얼로그(ProgressDialog)를 독립적으로 사용되면 의미가 없다. 시간이 걸리는 작업을 하기 때문에 Thread나 AsyncTask 클래스에 포함되어서 사용
- AsyncTask는 Thread를 사용할 일이 있을 때 좀더 편리하게 이용할 수 있도록 Android에서 지원하고 있는 클래스
- AsyncTask를 상속받아 만든 클래스는 3가지 메소드를 구현
- 이 3가지 메소드들에 ProgressDialog 기능을 구현
 - onPreExecute()
 - 작업시작, ProgressDialog 객체를 생성하고 시작
 - doInBackground()
 - 진행중, ProgressDialog의 진행 정도를 표현
 - doPostExecute()
 - 종료, ProgressDialog 종료 기능을 구현



ProgressDialog 예제 3

■ 다음과 같은 ProgressDialog 프로그램을 작성하여라





ProgressDialog 예제 3

■ MainActivity.JAVA

```
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        final ProgressDialog dialog = new ProgressDialog(this);
        dialog.setTitle("공지");
        dialog.setMessage("잠시만 기다려 주세요!!\n 프로그램 로딩중입니다.\n 중지하시겠습니까?");

        dialog.setCancelable(false);
        dialog.setButton("Yes", new DialogInterface.OnClickListener() {
            @Override
            public void onClick(DialogInterface dialogInterface, int i) {
                dialog.dismiss();
                Toast.makeText(getApplicationContext(), "중지하였습니다",
                    Toast.LENGTH_SHORT).show();
            }
        });
        dialog.show();
    }
}
```



ProgressDialog 예제 3

■ MainActivity.JAVA

```
Handler handler = new Handler();
handler.postDelayed(new Runnable() {
    @Override
    public void run() {
        try {
            if (dialog != null && dialog.isShowing()){
                dialog.dismiss();
                Toast.makeText(getApplicationContext(), "프로그램 로딩 완료",
                    Toast.LENGTH_SHORT).show();
            }
        } catch (Exception e) {
            e.printStackTrace();
        }
    }
}, 10000);
}
```



ProgressDialog 예제 4

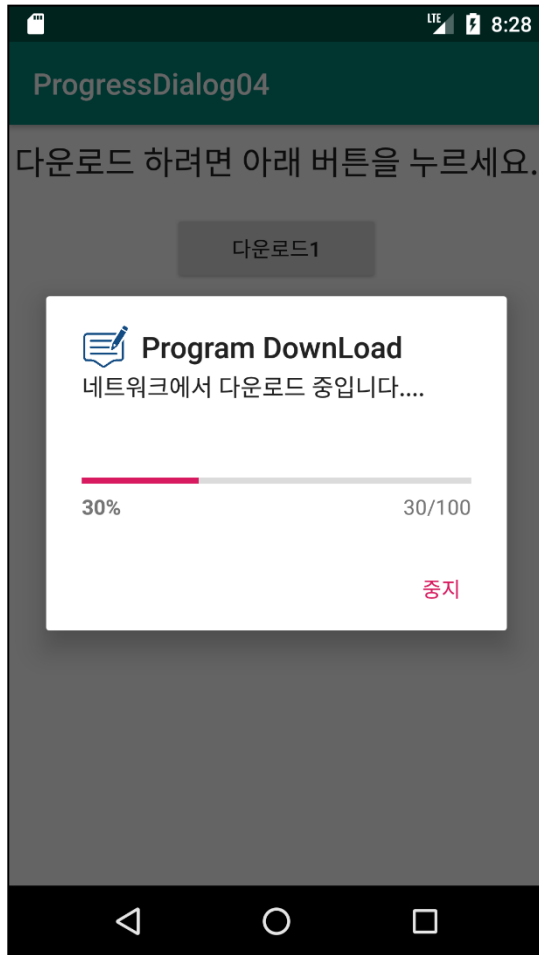
- 다음과 같은 ProgressDialog 프로그램을 작성하여라





ProgressDialog 예제 4

■ 실행 결과





ProgressDialog 예제 4

■ 사용자 인터페이스

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

    <TextView
        android:id="@+id/textView1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:text="다운로드 하려면 아래 버튼을 누르세요."
        android:textAppearance="?android:attr/textAppearanceLarge"/>
```



ProgressDialog 예제 4

■ 사용자 인터페이스

```
<Button
    android:id="@+id/button1"
    android:layout_width="140dp"
    android:layout_height="wrap_content"
    android:layout_marginTop="20dp"
    android:onClick="start"
    android:text="다운로드1" />
```

```
<Button
    android:id="@+id/button2"
    android:layout_width="140dp"
    android:layout_height="wrap_content"
    android:layout_marginTop="20dp"
    android:onClick="begin"
    android:text="다운로드2" />
```

```
</LinearLayout>
```



ProgressDialog 예제 4

■ MainActivity.JAVA

```
public class MainActivity extends AppCompatActivity {
    Thread thread;
    ProgressDialog dialog;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
    public void start(View view) {
        dialog = makeDialog();
        dialog.setButton("중지", new DialogInterface.OnClickListener() {
            @Override
            public void onClick(DialogInterface dialogInterface, int i) {
                dialog.dismiss();
                thread.interrupt();
                Toast.makeText(getApplicationContext(), "다운 중지",
                                                                    Toast.LENGTH_SHORT).show();
            }
        });
    }
}
```




ProgressDialog 예제 4

■ MainActivity.JAVA

```
dialog.show();
thread = new Thread() {
    @Override
    public void run() {
        int time = 0;
        boolean flag = false;
        while (time <= 100) {
            try {
                sleep(200);
                time += 5;
                dialog.setProgress(time);
            } catch (InterruptedException e) {
                flag = true;
            }
        }
    }
}
```



ProgressDialog 예제 4

■ MainActivity.JAVA

```
if (!flag) {  
    runOnUiThread(new Runnable() {  
        @Override  
        public void run() {  
            dialog.dismiss();  
            Toast.makeText(getApplicationContext(), "다운 완료",  
                Toast.LENGTH_SHORT).show();  
        }  
    });  
}  
};  
thread.start();  
}
```



ProgressDialog 예제 4

■ MainActivity.JAVA

```
private ProgressDialog makeDialog() {  
    ProgressDialog dialog = new ProgressDialog(this);  
    dialog.setIcon(R.drawable.message);  
    dialog.setTitle("Program Download");  
    dialog.setMessage("네트워크에서 다운로드 중입니다....");  
    dialog.setProgressStyle(ProgressDialog.STYLE_HORIZONTAL);  
    dialog.setProgress(0);  
    dialog.setMax(100);  
    dialog.setCancelable(false);  
    return dialog;  
}
```



ProgressDialog 예제 4

■ MainActivity.JAVA

```
public void begin(View view) {  
    dialog = makeDialog();  
    dialog.setButton("중지", new DialogInterface.OnClickListener() {  
        @Override  
        public void onClick(DialogInterface dialogInterface, int i) {  
            dialog.dismiss();  
            Toast.makeText(getApplicationContext(), "다운 중지",  
                Toast.LENGTH_SHORT).show();  
        }  
    });  
    dialog.show();  
    new Thread(new Runnable() {  
        @Override  
        public void run() {  
            try {
```



ProgressDialog 예제 4

■ MainActivity.JAVA

```
while (dialog.getProgress() <= dialog.getMax()) {  
    Thread.sleep(200);  
    Message message = handle.obtainMessage();  
    message.what = 0;  
    handle.sendMessage(message);  
    if (dialog.getProgress() == dialog.getMax()) {  
        dialog.dismiss();  
        handle.sendMessage(handle.obtainMessage(1));  
        break;  
    }  
}  
} catch (Exception e) {  
    e.printStackTrace();  
}  
}  
}).start();  
}
```



ProgressDialog 예제 4

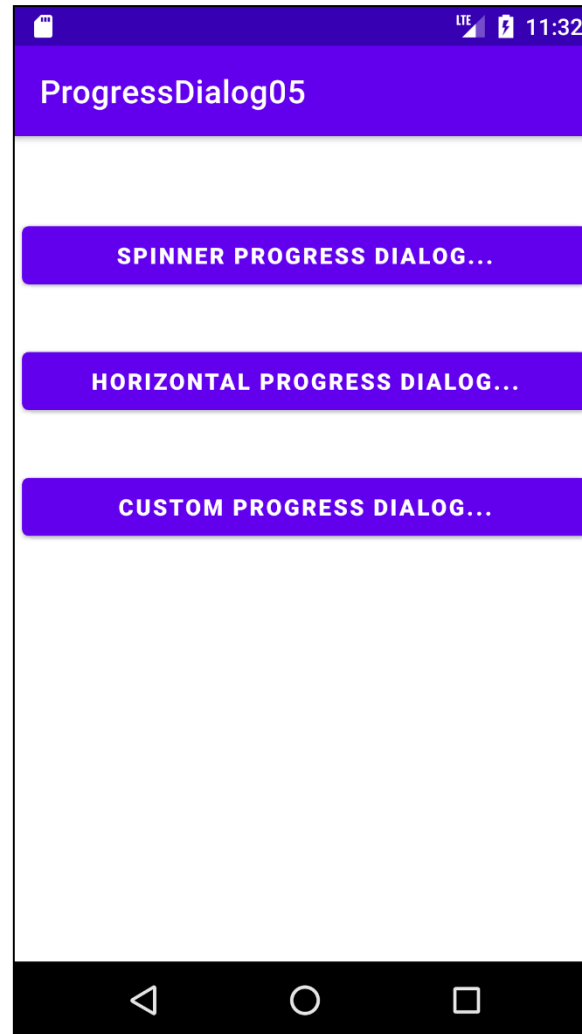
■ MainActivity.JAVA

```
@SuppressWarnings("HandlerLeak")
Handler handle = new Handler() {
    @Override
    public void handleMessage(Message msg) {
        super.handleMessage(msg);
        if (msg.what == 0) {
            dialog.incrementProgressBy(1);
        } else if (msg.what == 1) {
            Toast.makeText(getApplicationContext(), "다운 완료",
                Toast.LENGTH_SHORT).show();
        }
    }
};
}
```



ProgressDialog 예제 5

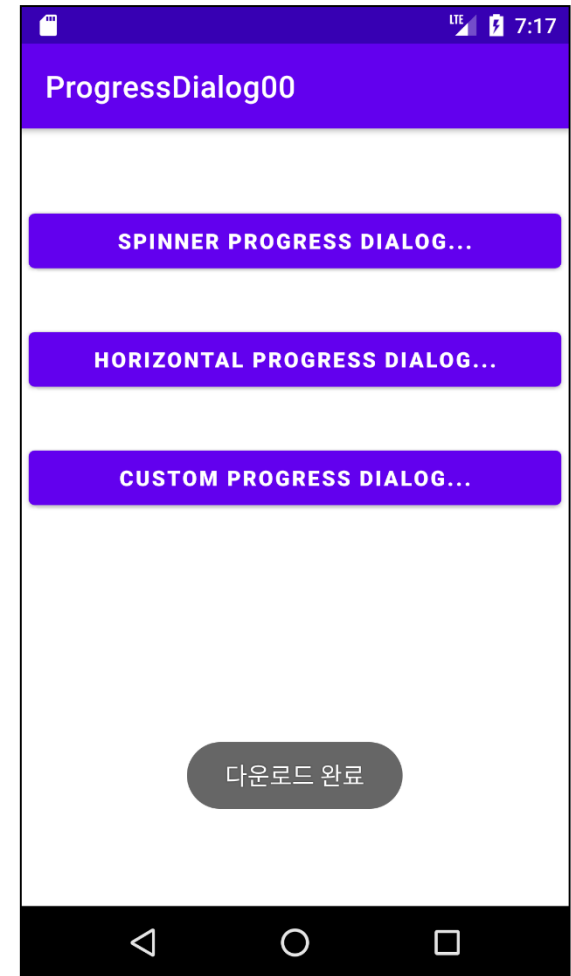
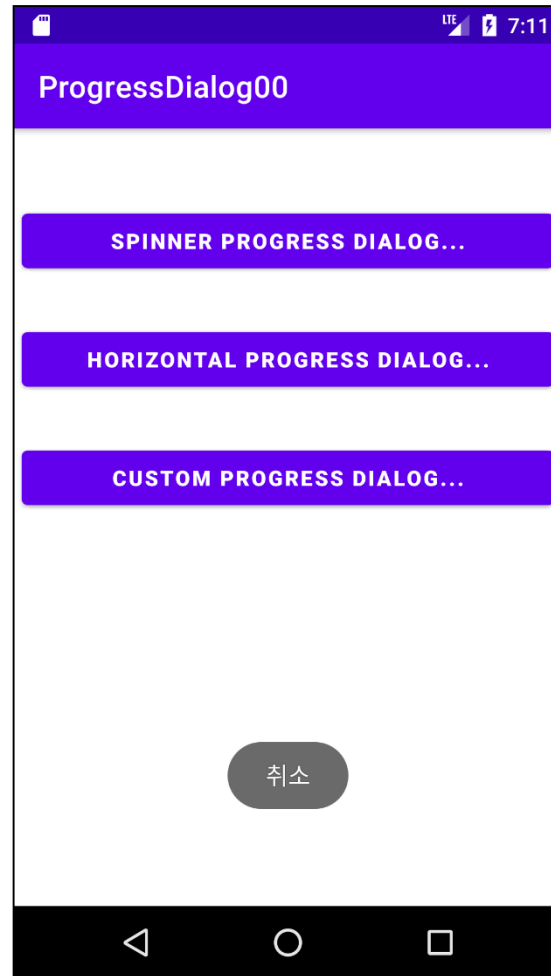
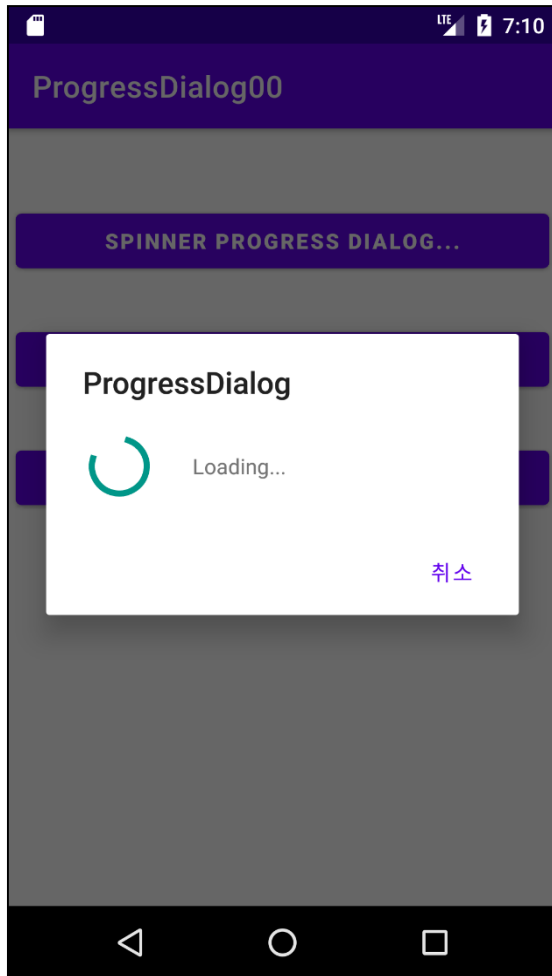
- 다음과 같은 ProgressDialog 프로그램을 작성하여라





ProgressDialog 예제 5

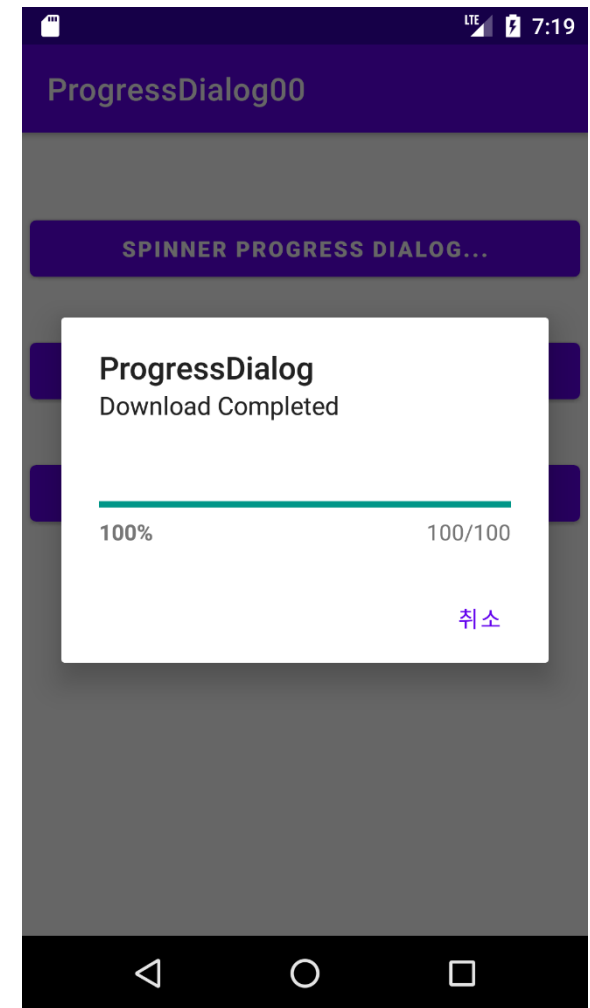
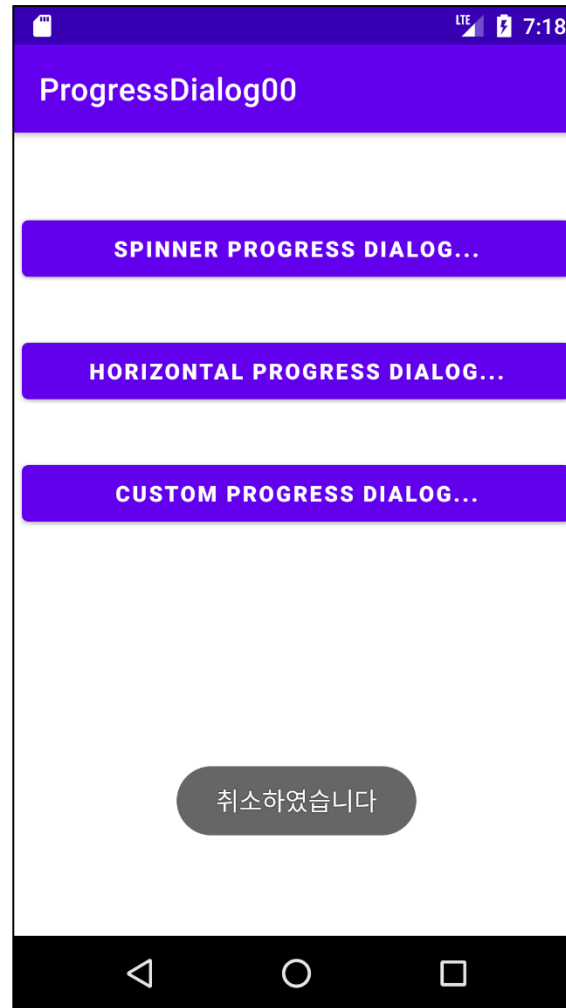
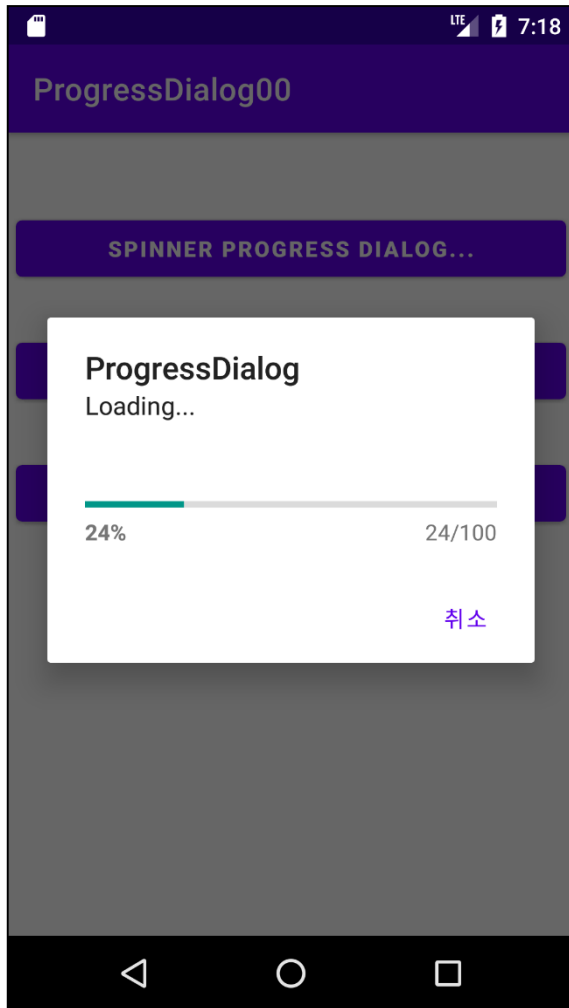
■ 실행 결과





ProgressDialog 예제 5

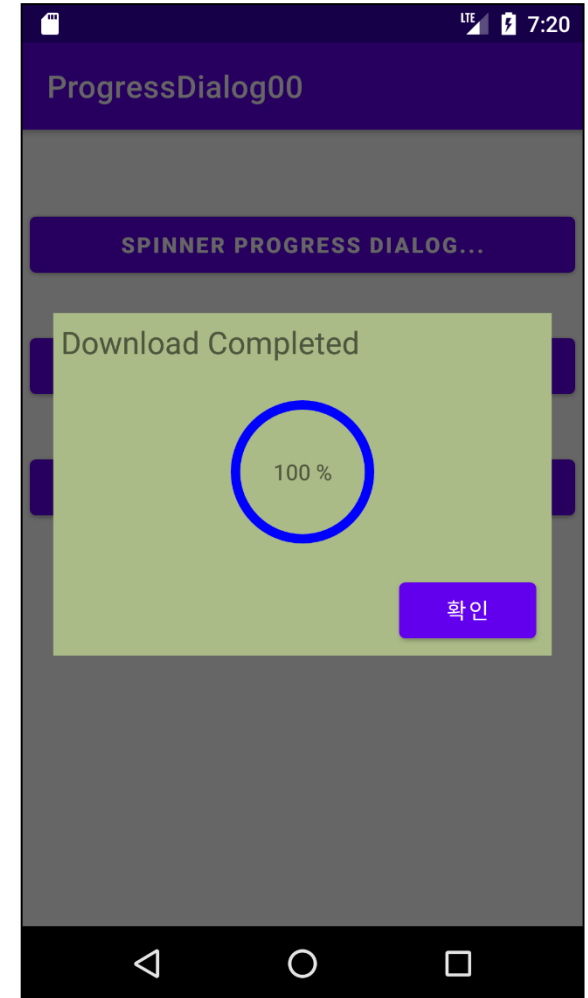
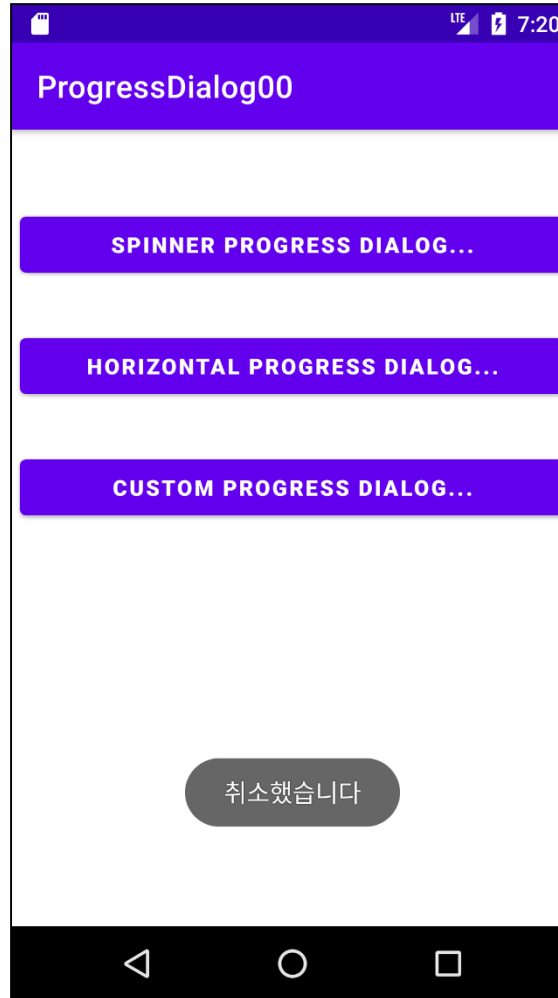
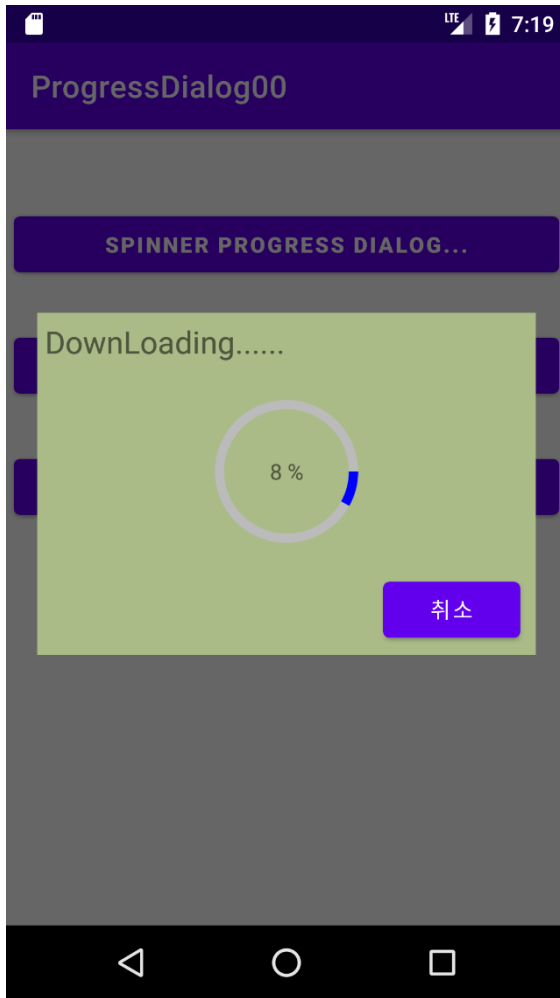
■ 실행 결과





ProgressDialog 예제 5

■ 실행 결과





ProgressDialog 예제 5

■ 사용자 인터페이스

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

    <Button
        android:id="@+id/button1"
        android:layout_width="350dp"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:layout_marginTop="50dp"
        android:text="Spinner Progress Dialog..."
        android:textStyle="normal|bold" />
```



ProgressDialog 예제 5

■ 사용자 인터페이스

```
<Button
    android:id="@+id/button2"
    android:layout_width="350dp"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:layout_marginTop="30dp"
    android:text="Horizontal Progress Dialog..."
    android:textStyle="normal|bold" />
```

```
<Button
    android:id="@+id/button3"
    android:layout_width="350dp"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:layout_marginTop="30dp"
    android:text="Custom Progress Dialog..."
    android:textStyle="normal|bold" />
```

```
</LinearLayout>
```



ProgressDialog 예제 5

■ my_layout.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="320dp"
    android:layout_height="220dp"
    android:layout_gravity="center"
    android:background="#AABB88"
    android:orientation="vertical">

    <TextView
        android:id="@+id/title"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:padding="5dp"
        android:text="Downloading....."
        android:textSize="20dp" />
```



ProgressDialog 예제 5



```
<FrameLayout
    android:layout_width="match_parent"
    android:layout_height="130dp">
    <TextView
        android:id="@+id/text2"
        android:layout_width="100dp"
        android:layout_height="100dp"
        android:layout_gravity="center"
        android:gravity="center"
        android:text="000 %" />
    <ProgressBar
        android:id="@+id/progress2"
        style="?android:attr/progressBarStyleHorizontal"
        android:layout_width="100dp"
        android:layout_height="100dp"
        android:layout_gravity="center"
        android:background="@drawable/circular_shape"
        android:progress="0"
        android:progressDrawable="@drawable/circle" />
</FrameLayout>
```



ProgressDialog 예제 5

■ my_layout.xml

```
<Button
    android:id="@+id/button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="end"
    android:layout_marginRight="10dp"
    android:text="취소" />
</LinearLayout>
```



ProgressDialog 예제 5

■ Drawable/circle.xml

```
<?xml version="1.0" encoding="utf-8"?>
<shape xmlns:android="http://schemas.android.com/apk/res/android"
    android:shape="ring"
    android:innerRadiusRatio="2.5"
    android:thickness="6dp"
    android:useLevel="true" >
    <solid android:color="#0000FF" />
</shape>
```




ProgressDialog 예제 0

■ Drawable/circular_shape.xml

```
<?xml version="1.0" encoding="utf-8"?>
<shape xmlns:android="http://schemas.android.com/apk/res/android"
    android:shape="ring"
    android:innerRadiusRatio="2.5"
    android:thickness="6dp"
    android:useLevel="false" >
    <solid android:color="#BBBBBB"/>
</shape>
```



ProgressDialog 예제 5

■ MainActivity.JAVA

```
public class MainActivity extends AppCompatActivity {  
    ProgressDialog dialog;  
    Thread thread;  
    static CheckTypesTask task;  
  
    @Override  
    protected void onCreate(Bundle savedInstanceState) {  
        super.onCreate(savedInstanceState);  
        setContentView(R.layout.activity_main);  
    }  
}
```



ProgressDialog 예제 5

■ MainActivity.JAVA

```
Button button1 = findViewById(R.id.button1);
button1.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        dialogshow(ProgressDialog.STYLE_SPINNER);
        dialog.setButton(DialogInterface.BUTTON_NEGATIVE, "취소",
            new DialogInterface.OnClickListener() {
                @Override
                public void onClick(DialogInterface dialog, int which) {
                    Toast.makeText(getApplicationContext(), "취소",
                        Toast.LENGTH_SHORT).show();
                }
            });
        dialog.show();
        MyThread1 thread1 = new MyThread1(MainActivity.this, dialog);
        thread1.start();
    }
});
```



ProgressDialog 예제 5

```
Button button2 = findViewById(R.id.button2);
button2.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        dialogshow(ProgressDialog.STYLE_HORIZONTAL);
        dialog.setButton(DialogInterface.BUTTON_NEGATIVE, "취소",
            new DialogInterface.OnClickListener() {
                @Override
                public void onClick(DialogInterface dialog, int which) {
                    Toast.makeText(getApplicationContext(), "취소하였습니다",
                        Toast.LENGTH_SHORT).show();

                    thread.interrupt();
                }
            });
        dialog.show();
        MyThread2 thread2 = new MyThread2(dialog);
        thread = new Thread(thread2);
        thread.start();
    }
});
```



ProgressDialog 예제 5



```
Button button3 = findViewById(R.id.button3);
button3.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        CustomProgressDialog dialog =
            new CustomProgressDialog(MainActivity.this);
        task = new CheckTypesTask(MainActivity.this, dialog);
        task.execute();
    }
});
}

private void dialogshow(int style) {
    dialog = new ProgressDialog(MainActivity.this);
    dialog.setProgressStyle(style);
    dialog.setMessage("Loading...");
    dialog.setTitle("ProgressDialog");
    dialog.setMax(100);
    dialog.setCancelable(false);
}
}
```



ProgressDialog 예제 0

■ MyThread1.JAVA

```
public class MyThread1 extends Thread {  
    Context context;  
    ProgressDialog dialog;  
    Handler handler = new Handler();  
  
    public MyThread1(Context context, ProgressDialog dialog) {  
        this.context = context;  
        this.dialog = dialog;  
    }  
}
```



ProgressDialog 예제 5

■ MyThread1.JAVA

```
public void run() {  
    try {  
        Thread.sleep(10000);  
    } catch (Exception e) {  
        e.printStackTrace();  
    }  
    dialog.dismiss();  
    handler.post(new Runnable() {  
        @Override  
        public void run() {  
            Toast.makeText(context, "다운로드 완료",  
                           Toast.LENGTH_SHORT).show();  
        }  
    });  
}
```



ProgressDialog 예제 5

■ MyThread2.JAVA

```
public class MyThread2 implements Runnable {
    ProgressDialog dialog;
    Handler handler = new Handler();

    public MyThread2(ProgressDialog dialog) {
        this.dialog = dialog;
    }

    @Override
    public void run() {
        try {
            while (!Thread.currentThread().isInterrupted() &&
                    dialog.getProgress() < dialog.getMax()) {
                Thread.sleep(200);
                dialog.incrementProgressBy(2);
            }
        }
    }
}
```




ProgressDialog 예제 5

■ MyThread2.JAVA

```
        if (dialog.getProgress() == dialog.getMax()) {  
            handler.post(new Runnable() {  
                @Override  
                public void run() {  
                    dialog.setMessage("Download Completed");  
                }  
            });  
            Thread.sleep(2000);  
            dialog.dismiss();  
        }  
    }  
} catch (InterruptedException e) {  
    e.printStackTrace();  
}  
}  
}
```



ProgressDialog 예제 5

■ CustomProgressDialog.JAVA

```
public class CustomProgressDialog extends Dialog {  
    private ProgressBar progressBar;  
    private TextView textView1, textView2;  
    private Button button;  
  
    public CustomProgressDialog(Context context) {  
        super(context);  
        requestWindowFeature(Window.FEATURE_NO_TITLE);  
        setContentView(R.layout.my_layout);  
  
        progressBar = findViewById(R.id.progress2);  
        textView1 = findViewById(R.id.title);  
        textView2 = findViewById(R.id.text2);  
        button = findViewById(R.id.button);  
    }  
}
```



ProgressDialog 예제 5

■ CustomProgressDialog.JAVA

```
button.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        Toast.makeText(context, "취소했습니다",  
                        Toast.LENGTH_SHORT).show();  
        MainActivity.task.cancel(true);  
        CheckTypesTask.progressDialog.dismiss();  
    }  
});  
}
```



ProgressDialog 예제 5

■ CustomProgressDialog.JAVA

```
public ProgressBar getProgressBar() {  
    return progressBar;  
}  
public TextView getTextView1() {  
    return textView1;  
}  
public TextView getTextView2() {  
    return textView2;  
}  
public Button getButton() {  
    return button;  
}  
}
```



ProgressDialog 예제 5

■ CheckTypesTask.JAVA

```
public class CheckTypesTask extends AsyncTask<Void, Integer, Void> {
    Context context;
    static ProgressDialog progressDialog;

    public CheckTypesTask(Context context,
                           ProgressDialog progressDialog) {

        this.context = context;
        this.progressDialog = progressDialog;
    }

    @Override
    protected void onPreExecute() {
        progressDialog.getWindow().setBackgroundDrawable(
            new ColorDrawable(Color.TRANSPARENT));
        progressDialog.show();

        super.onPreExecute();
    }
}
```



ProgressDialog 예제 5

■ CheckTypesTask.JAVA

@Override

```
protected Void doInBackground(Void... arg0) {  
    try {  
        int i = 0;  
        while (!isCancelled() && i <= 100) {  
            Thread.sleep(200);  
            publishProgress(i);  
            i += 2;  
        }  
    } catch (InterruptedException e) {  
        e.printStackTrace();  
    }  
    return null;  
}
```



ProgressDialog 예제 5

■ CheckTypesTask.JAVA

@Override

```
protected void onProgressUpdate(Integer... values) {  
    super.onProgressUpdate(values);  
    progressDialog.getTextView2().setText(values[0] + " %");  
    progressDialog.getProgressBar().setProgress(values[0]);  
}
```



ProgressDialog 예제 5

■ CheckTypesTask.JAVA

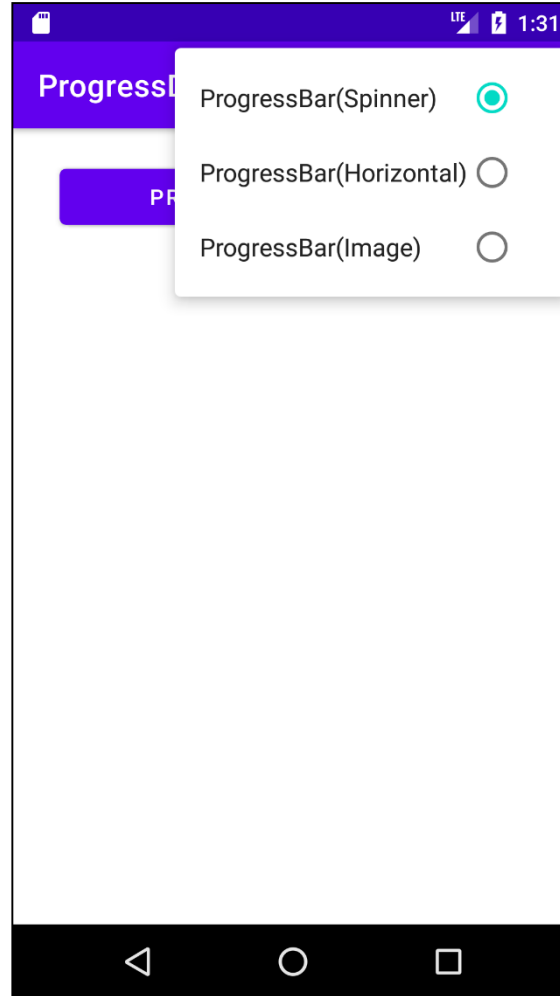
@Override

```
protected void onPostExecute(Void result) {  
    progressDialog.getTextView1().setText("Download Completed");  
    progressDialog.getButton().setText("확인");  
    progressDialog.getButton().setOnClickListener(new View.OnClickListener() {  
        @Override  
        public void onClick(View v) {  
            Toast.makeText(context, "확인하였습니다",  
                           Toast.LENGTH_SHORT).show();  
            progressDialog.dismiss();  
        }  
    });  
    super.onPostExecute(result);  
}
```




ProgressDialog 예제 6

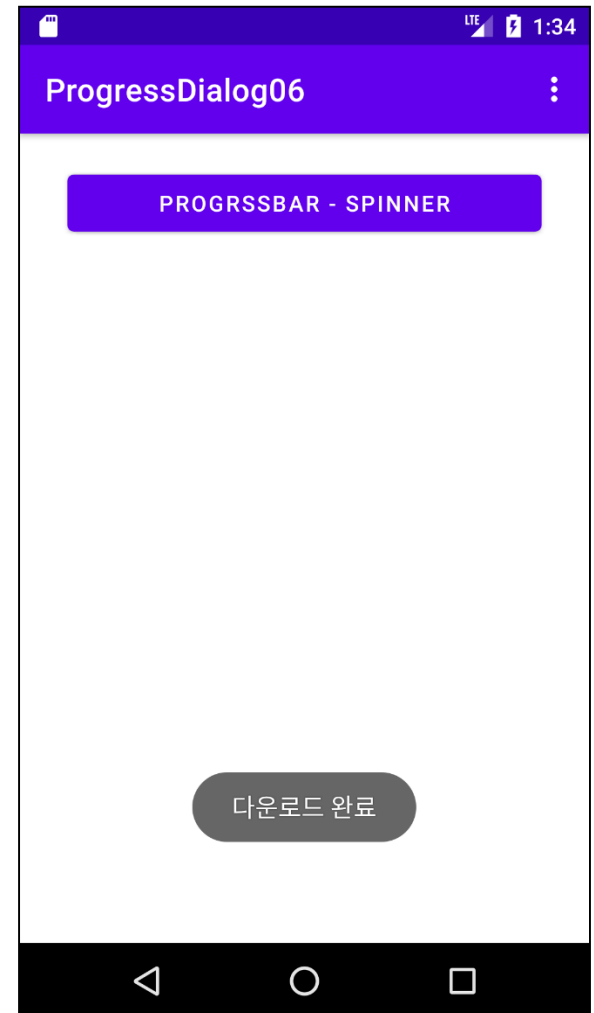
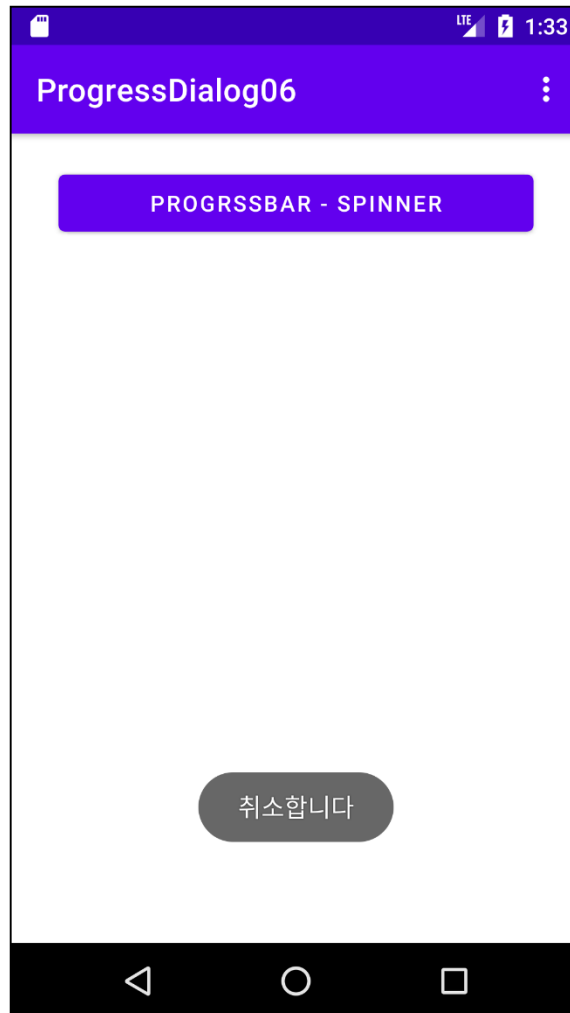
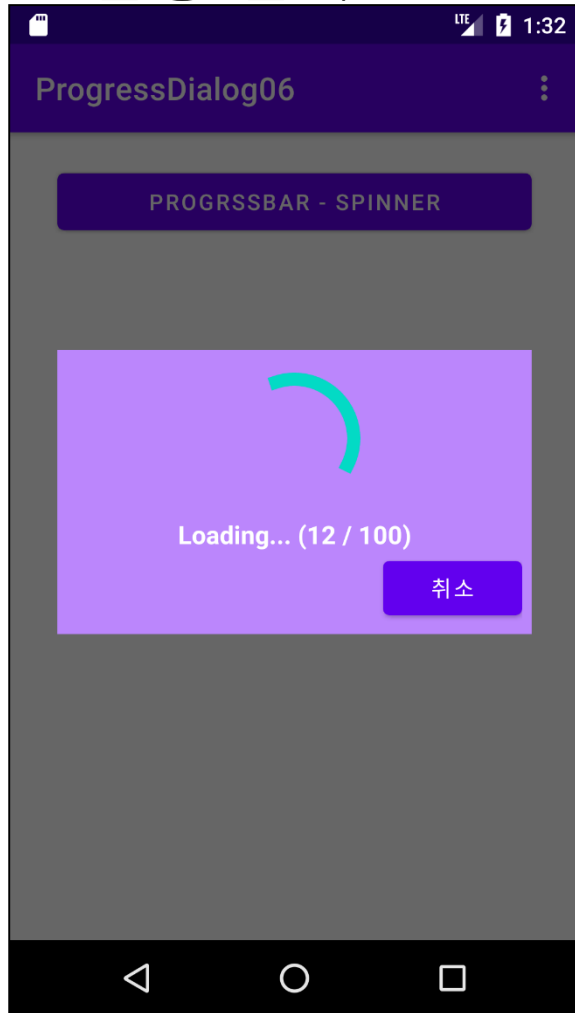
- 다음과 같은 ProgressDialog를 만들어보자





ProgressDialog 예제 6

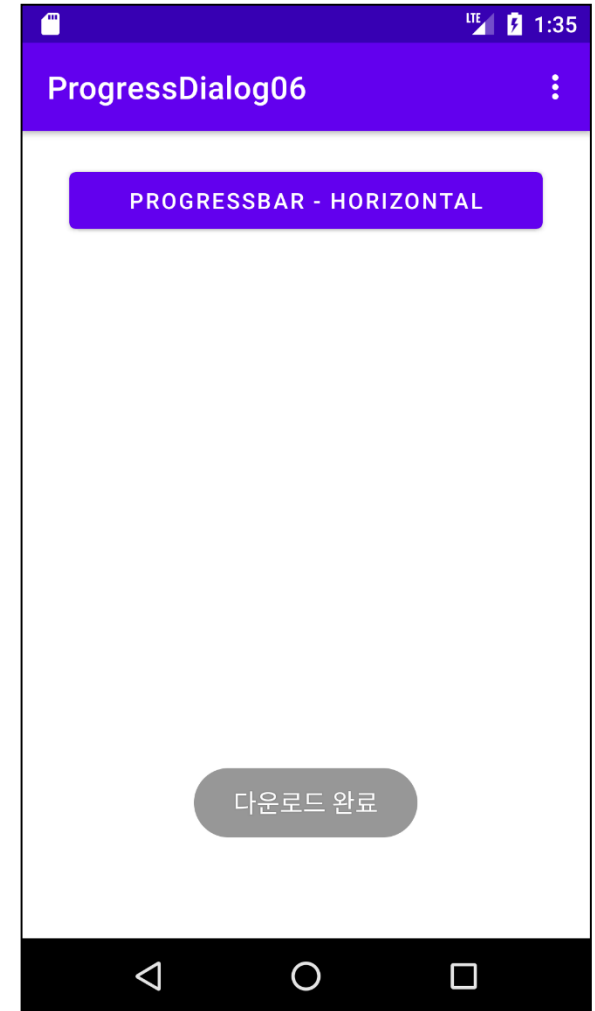
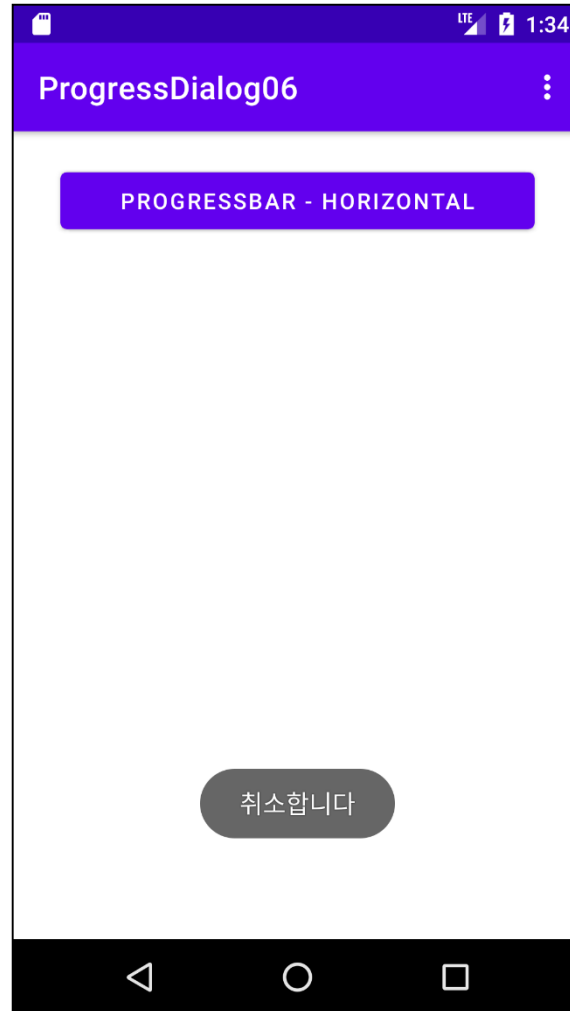
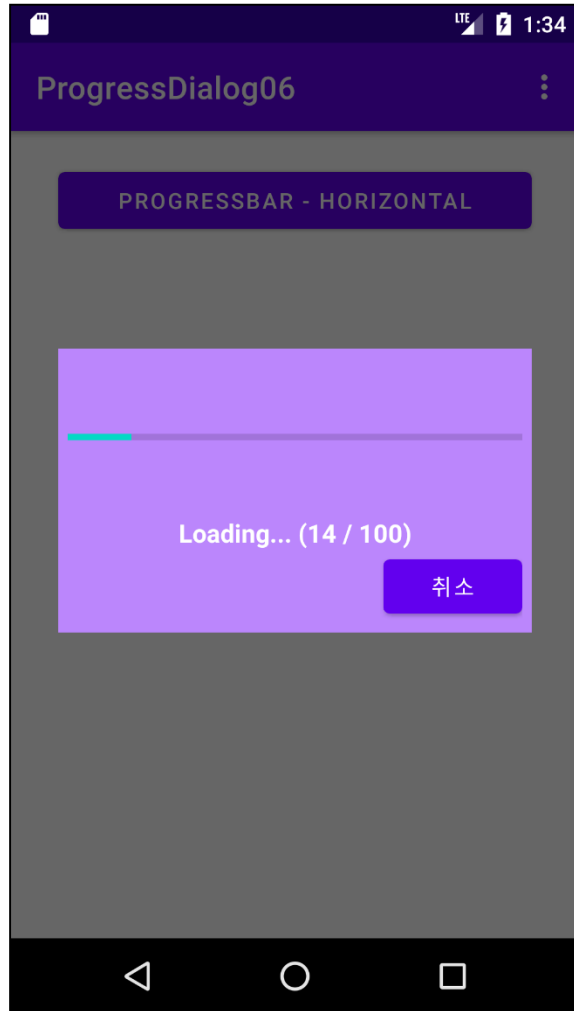
■ 실행 결과





ProgressDialog 예제 6

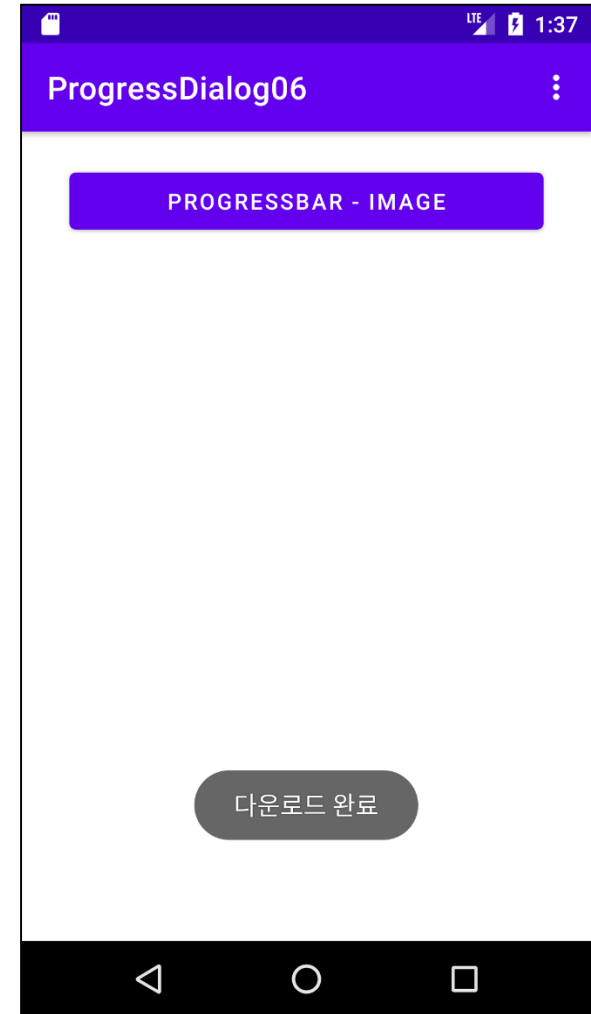
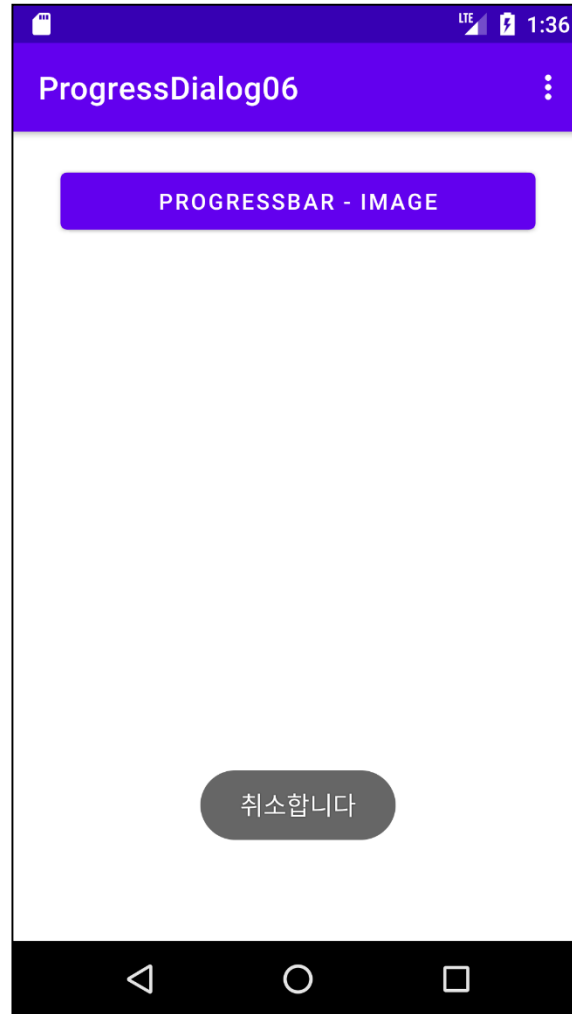
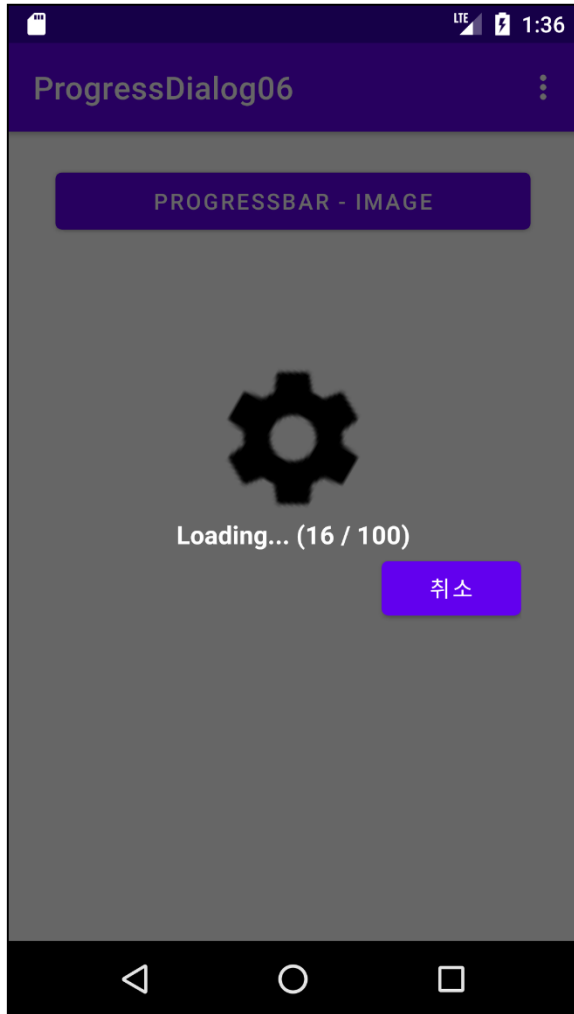
■ 실행 결과





ProgressDialog 예제 6

■ 실행 결과





ProgressDialog 예제 6

■ 사용자 인터페이스

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

    <Button
        android:id="@+id/button"
        android:layout_width="300dp"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:layout_marginTop="20dp"
        android:text="ProgrssBar – Spinner" />

</LinearLayout>
```



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■ dialog_progress1.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="300dp"
    android:layout_height="180dp"
    android:background="@color/purple_200"
    android:orientation="vertical"
    android:padding="6dp">

    <ProgressBar
        android:id="@+id/progressBar"
        android:layout_width="match_parent"
        android:layout_height="100dp" />
```



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■ dialog_progress1.xml

<TextView

```
    android:id="@+id/textView"  
    android:layout_width="match_parent"  
    android:layout_height="wrap_content"  
    android:gravity="center"  
    android:text="Loading..."  
    android:textColor="@android:color/white"  
    android:textSize="16dp"  
    android:textStyle="bold" />
```

<Button

```
    android:id="@+id/button"  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:layout_gravity="end"  
    android:text="취소" />
```

</LinearLayout>



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■ dialog_progress2.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="300dp"
    android:layout_height="180dp"
    android:background="@color/purple_200"
    android:orientation="vertical"
    android:padding="6dp">

    <ProgressBar
        android:id="@+id/progressBar"
        android:layout_width="match_parent"
        android:layout_height="100dp"
        style="?android:attr/progressBarStyleHorizontal"/>
```




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■ dialog_progress2.xml

```
<TextView
    android:id="@+id/textView"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:gravity="center"
    android:text="Loading..."
    android:textColor="@android:color/white"
    android:textSize="16dp"
    android:textStyle="bold" />
```

```
<Button
    android:id="@+id/button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="end"
    android:text="취소"/>
```

```
</LinearLayout>
```



ProgressDialog 예제 6

■ dialog_progress3.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="300dp"
    android:layout_height="180dp"
    android:background="@drawable/progress_bg"
    android:orientation="vertical"
    android:padding="6dp">

    <ProgressBar
        android:id="@+id/progressBar"
        android:layout_width="match_parent"
        android:layout_height="100dp"
        android:indeterminateDrawable="@drawable/progress_image" />
```



ProgressDialog 예제 6

■ dialog_progress3.xml

```
<TextView
    android:id="@+id/textView"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:gravity="center"
    android:text="Loading..."
    android:textColor="@android:color/white"
    android:textSize="16dp"
    android:textStyle="bold" />
```

```
<Button
    android:id="@+id/button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="end"
    android:text="취소"/>
```

```
</LinearLayout>
```



ProgressDialog 예제 6

■ progress_bg.xml

```
<?xml version="1.0" encoding="utf-8"?>
<shape xmlns:android="http://schemas.android.com/apk/res/android">
    <solid android:color="#00ffffff"/>
    <corners android:radius="12dp"/>
    <stroke
        android:width="1dp"
        android:color="#00ffffff" />
</shape>
```



ProgressDialog 예제 6

■ progress_image.xml

```
<?xml version="1.0" encoding="utf-8"?>
<animated-rotate xmlns:android="http://schemas.android.com/apk/res/android"
    android:drawable="@drawable/ic_settings_black_24dp"
    android:pivotX="50%"
    android:pivotY="50%"/>
```



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■ optionmenu.xml

```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android">
    <group android:checkableBehavior="single">
        <item
            android:id="@+id/item1"
            android:checked="true"
            android:title="ProgressBar(Spinner)" />
        <item
            android:id="@+id/item2"
            android:title="ProgressBar(Horizontal)" />
        <item
            android:id="@+id/item3"
            android:title="ProgressBar(Image)" />
    </group>
</menu>
```



ProgressDialog 예제 6

■ MainActivity.JAVA

```
public class MainActivity extends AppCompatActivity {  
    Button button;  
    int type = 1;  
    static MyThread thread;  
  
    @Override  
    protected void onCreate(Bundle savedInstanceState) {  
        super.onCreate(savedInstanceState);  
        setContentView(R.layout.activity_main);  
    }  
}
```



ProgressDialog 예제 6

■ MainActivity.JAVA

```
button = findViewById(R.id.button);
button.setOnClickListener(new View.OnClickListener() {
    ProgressDialog dialog;
    @Override
    public void onClick(View v) {
        if (type == 1) {
            dialog = new ProgressDialog(MainActivity.this,
                                         R.layout.dialog_progress1);
        } else if (type == 2) {
            dialog = new ProgressDialog(MainActivity.this,
                                         R.layout.dialog_progress2);
        } else {
            dialog = new ProgressDialog(MainActivity.this,
                                         R.layout.dialog_progress3);
        }
    }
});
```




ProgressDialog 예제 6

■ MainActivity.JAVA

```
        dialog.getWindow().setBackgroundDrawable(  
            new ColorDrawable(android.graphics.Color.TRANSPARENT));  
        dialog.show();  
        thread = new MyThread(MainActivity.this, dialog);  
        thread.start();  
    }  
});  
}  
  
@Override  
public boolean onCreateOptionsMenu(Menu menu) {  
    getMenuInflater().inflate(R.menu.optionmenu, menu);  
    return true;  
}
```



ProgressDialog 예제 6

■ MainActivity.JAVA

@Override

```
public boolean onOptionsItemSelected(MenuItem item) {  
    switch (item.getItemId()) {  
        case R.id.item1:  
            type = 1;  
            button.setText("ProgressBar – Spinner");  
            break;  
        case R.id.item2:  
            type = 2;  
            button.setText("ProgressBar – Horizontal");  
            break;  
        case R.id.item3:  
            button.setText("ProgressBar – Image");  
            type = 3;  
    }  
    item.setChecked(true);  
    return true;  
}
```



ProgressDialog 예제 6

■ ProgressDialog.JAVA

```
public class ProgressDialog extends Dialog {  
    static TextView textView;  
    static ProgressBar bar;  
  
    public ProgressDialog(Context context, int layout) {  
        super(context);  
        requestWindowFeature(Window.FEATURE_NO_TITLE);  
        setContentView(layout);  
  
        bar = findViewById(R.id.progressBar);  
        textView = findViewById(R.id.textView);  
    }  
}
```



ProgressDialog 예제 6

■ ProgressDialog.JAVA

```
Button button = findViewById(R.id.button);
button.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        MainActivity.thread.interrupt();
        Toast.makeText(getApplicationContext(), "취소합니다",
                                           Toast.LENGTH_SHORT).show();
    }
});
}
```



ProgressDialog 예제 6

■ MyThread.JAVA

```
public class MyThread extends Thread {  
    Context context;  
    ProgressDialog dialog;  
    Handler handler = new Handler();  
  
    public MyThread1(Context context, ProgressDialog1 dialog) {  
        this.context = context;  
        this.dialog = dialog;  
    }  
}
```



ProgressDialog 예제 6

■ MyThread.JAVA

```
public void run() {  
    try {  
        int i = 0;  
        while (!Thread.currentThread().isInterrupted() && i <= 100) {  
            Thread.sleep(200);  
            i += 2;  
            int finall = i;  
            handler.post(new Runnable() {  
                @Override  
                public void run() {  
                    ProgressDialog.bar.setProgress(finall);  
                    ProgressDialog.textView.setText("Loading... (" +  
                                                    finall + " / 100)");  
                }  
            });  
        }  
    }  
}
```



ProgressDialog 예제 6

■ MyThread.JAVA

```
        dialog.dismiss();
        handler.post(new Runnable() {
            @Override
            public void run() {
                Toast.makeText(context, "다운로드 완료",
                               Toast.LENGTH_SHORT).show();
            }
        });
    } catch (InterruptedException e) {
        dialog.dismiss();
        e.printStackTrace();
    }
}
```