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Introduction to Mobile Computing with Android

Prof. Manish Kumar Joshi, Assistant Professor
IT & Computer Science

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CHAPTER-4

Master Android Basics

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Showing Alert Message to The User

We can show alert messages to the users in 2 different ways

1. Using Toast message
2. Using Alert Dialogue Box

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Toast Message

A **Toast** is a feedback message. It takes a very little space for displaying while overall activity is interactive and visible to the user. It disappears after a few seconds. It disappears automatically.

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Constants of Toast Class

- public static final int LENGTH_LONG
- public static final int LENGTH_SHORT

Method of Toast Class

- public static Toast makeText(Context context, CharSequence text, int duration)
- public void show()
- public void setMargin (float horizontalMargin, float verticalMargin)

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Alert Dialog Box

A Dialog is small window that prompts the user to a decision or enter additional information.

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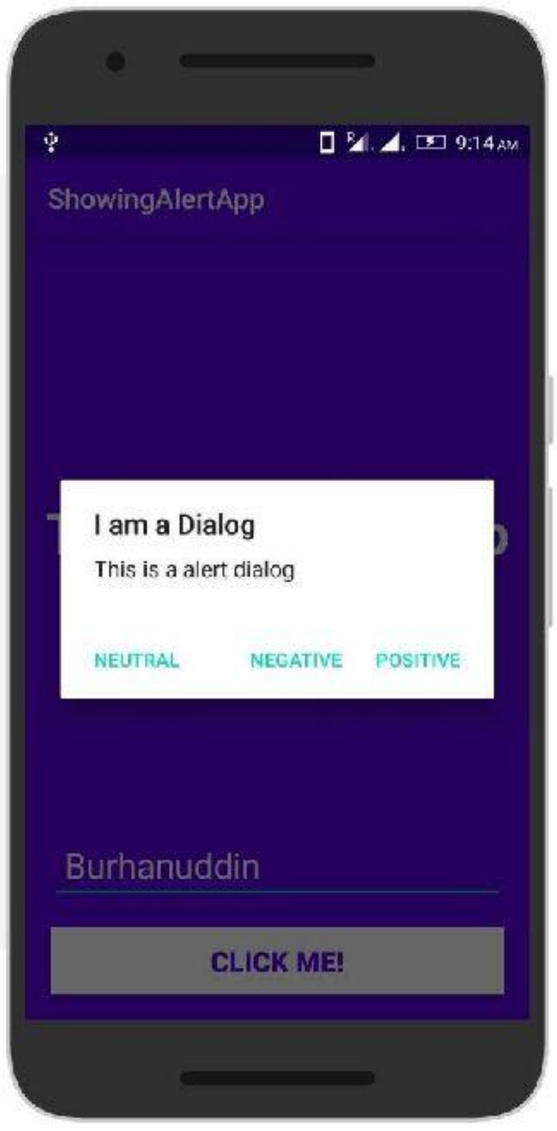
Alert Dialog Box

Some times in your application, if you wanted to ask the user about taking a decision between yes or no in response of any particular action taken by the user, by remaining in the same activity and without changing the screen, you can use Alert Dialog.



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Method of Alert Dialog Box

- setIcon(Drawable icon)
- setCancelable(boolean cancel able)
- setMessage(CharSequence message)
- setMultiChoiceItems(CharSequence[] items, boolean[] checkedItems, DialogInterface.OnMultiChoiceClickListener listener)
- setOnCancelListener(DialogInterface.OnCancelListener onCancelListener)
- setTitle(CharSequence title)

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Intent and Passing Data Between Activities

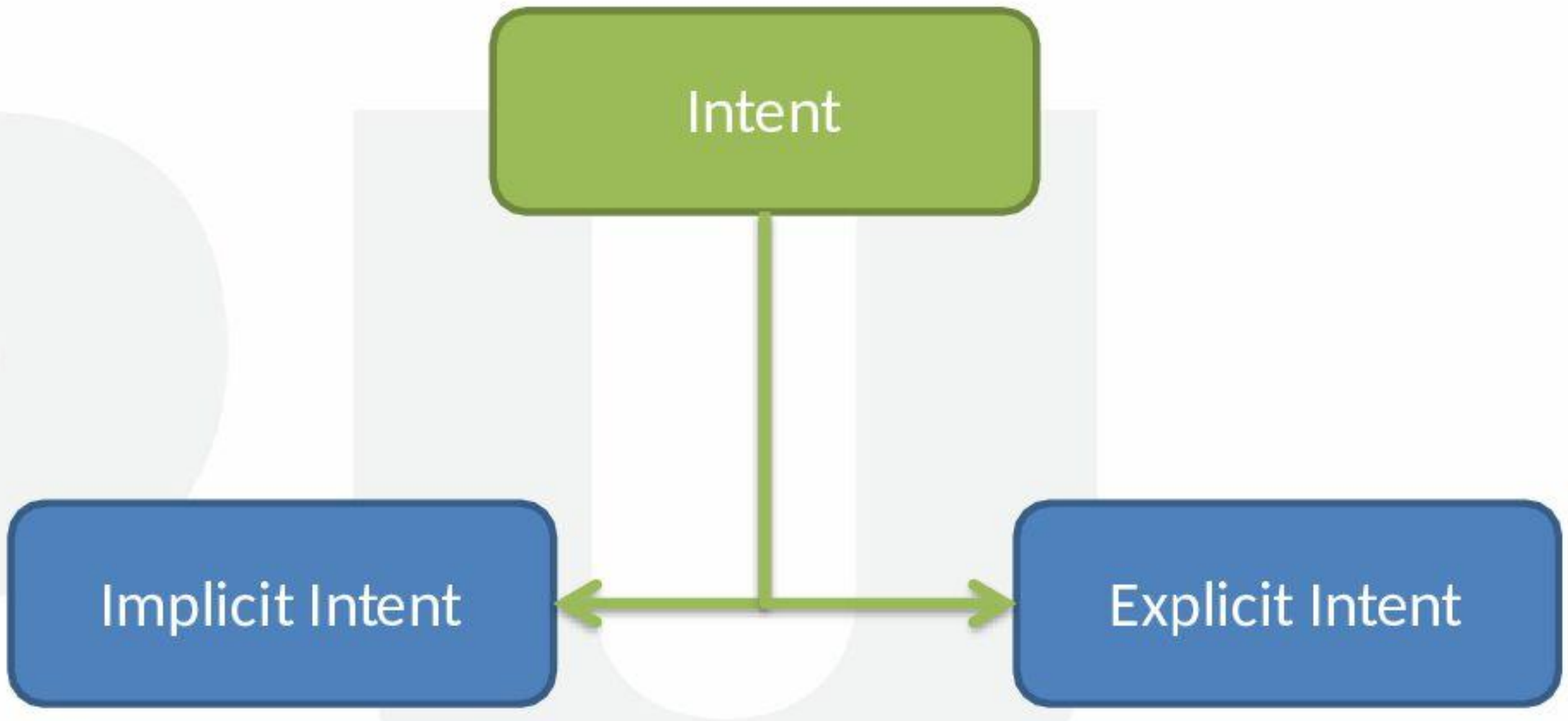
An Android Intent is an abstract description of an operation to be performed. It can be used with startActivity to launch an Activity, broadcastIntent to send it to any interested BroadcastReceiver components, and startService(Intent) or bindService(Intent, ServiceConnection, int) to communicate with a background Service.

The intent itself, an Intent object, is a passive data structure holding an abstract description of an operation to be performed.

Types of Intent

There are following two types of intents supported by Android

1. Implicit Intent
2. Explicit Intent



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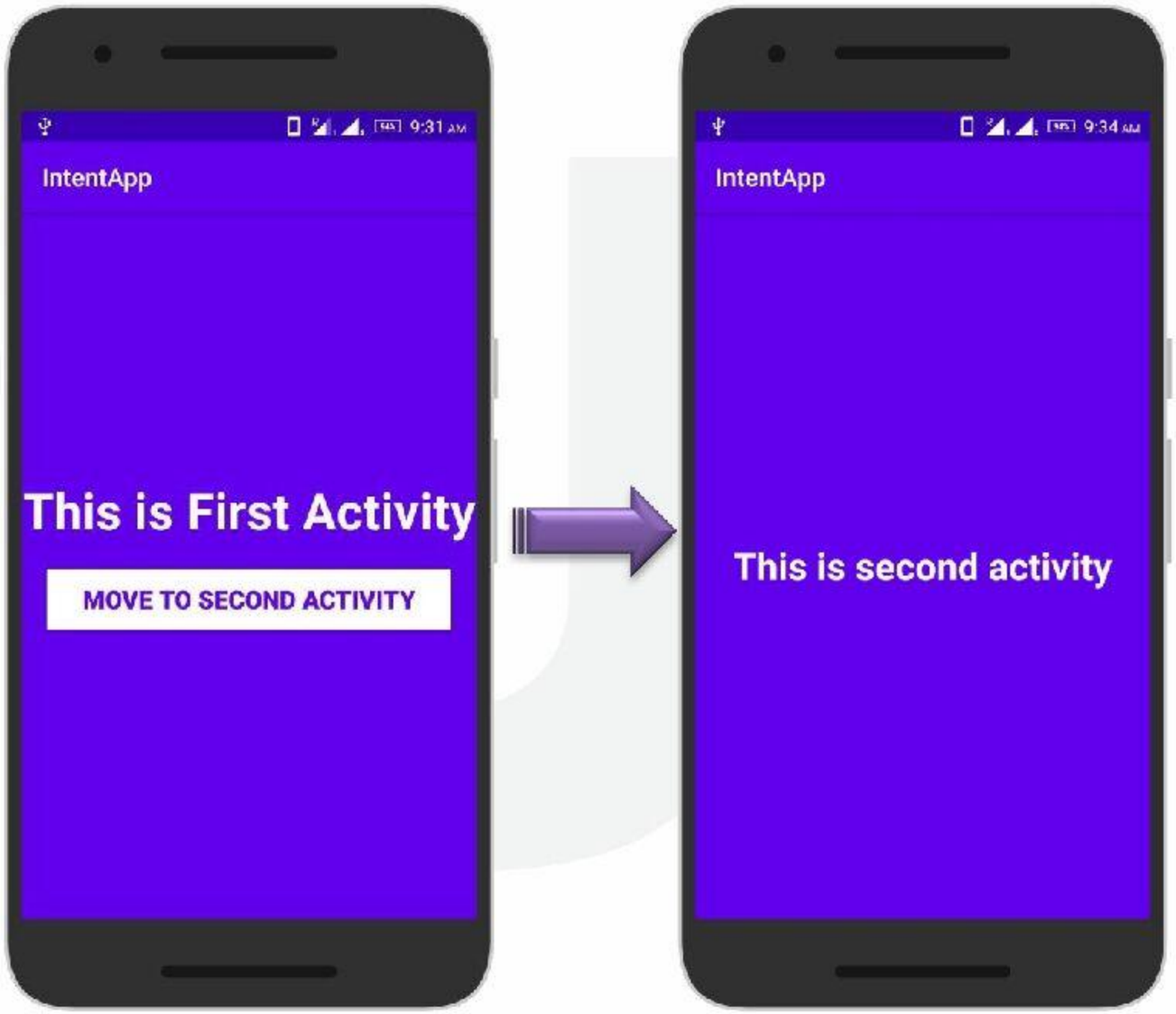
Explicit Intent

Explicit intent to be going connecte internal world d suppos of applicatio to e connectif one activity to another activity, we can do this quote by explicit intent. These intents designate the target component by its name and they are typically used for application-internal messages - such as an activity starting a



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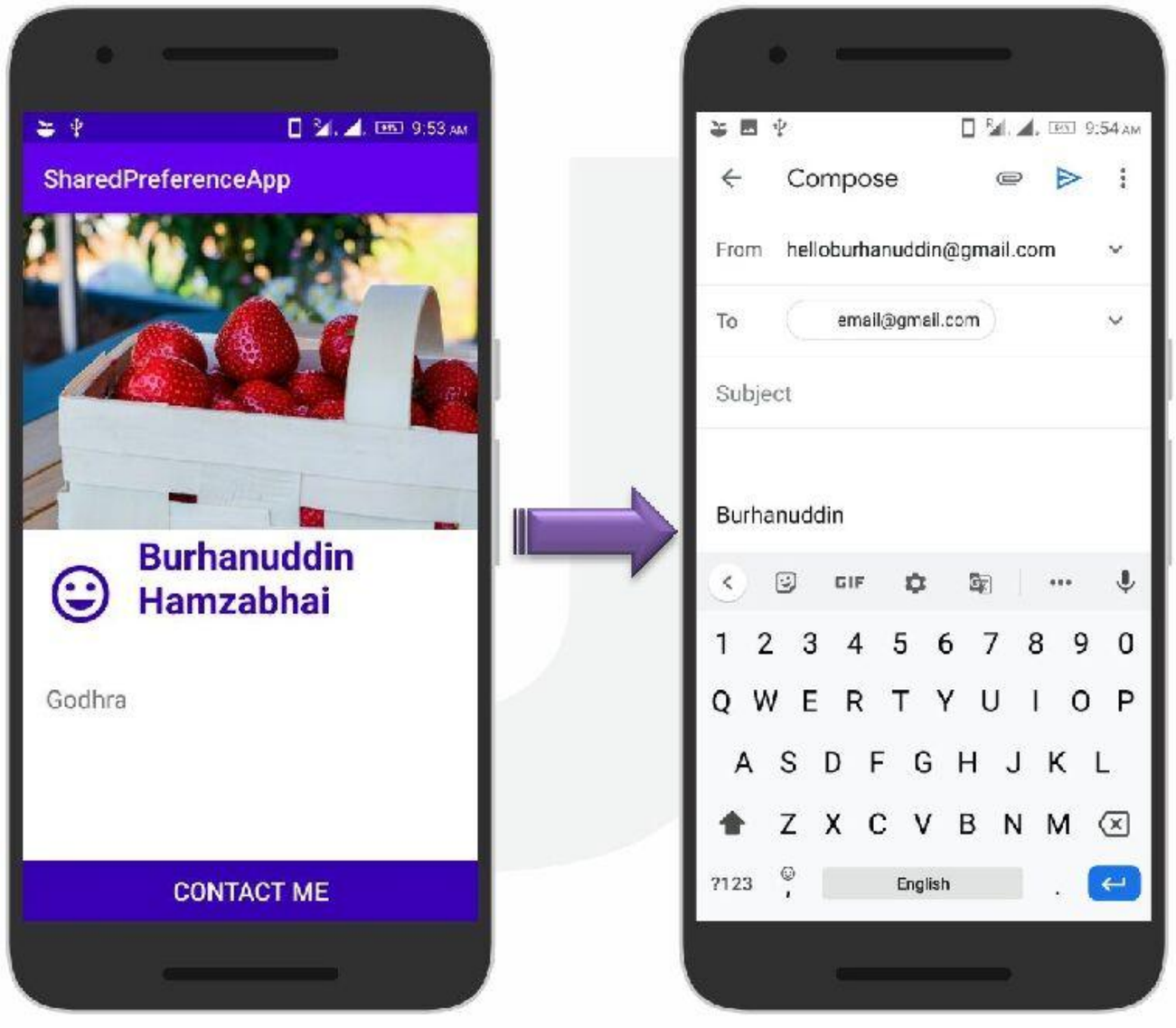
Implicit Intent

These intents do not name a target and the field for the component name is left blank. Implicit intents are often used to activate components in other applications.



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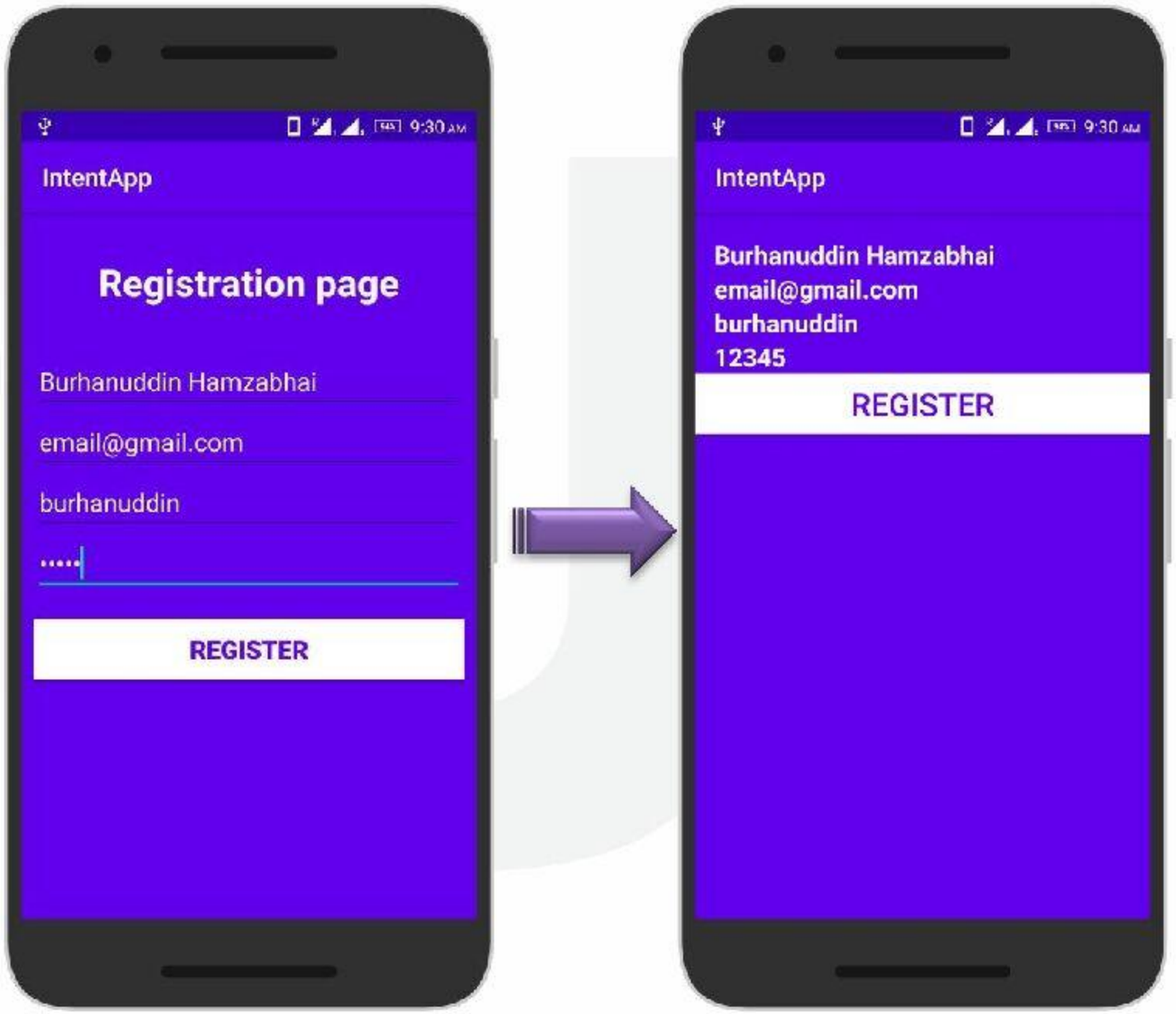
Intent Objects

An Intent object is a bundle of information which is used by the component that receives the intent as well as information used by the Android system.

An Intent object can contain the following components based on what it is communicating or going to perform.



Action

This is mandatory part of the Intent object and is a string naming the action to be performed — or, in the case of broadcast intents, the action that took place and is being reported. The action largely determines how the rest of the intent object is structured . The Intent class defines a number of action constants corresponding to different intents.

The action in an Intent object can be set by the setAction() method and read by getAction().

Data

Adds a data specification to an intent filter. The specification can be just a data type (the mimeType attribute), just a URI, or both a data type and a URI. A URI is specified by separate attributes for each of its parts −

These attributes that specify the URL format are optional, but also mutually dependent

If a scheme is not specified for the intent filter, all the other URI attributes are ignored.

If a host is not specified for the filter, the port attribute and all the path

attributes are ignored.

The setData() method specifies data only as a URI, setType() specifies it only as a MIME type, and setDataAndType() specifies it as both a URI and a MIME type. The URI is read by getData()

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SavedInstanceState Bundle

The savedInstanceState is a reference to a Bundle object that is passed into the onCreate method of every Android Activity. Activities have the ability, under special circumstances, to restore themselves to a previous state using the data stored in this bundle. If there is no available instance data, the savedInstanceState will be null. For example, the savedInstanceState will always be null the first time an Activity is started, but may be non-null if an Activity is destroyed during rotation.

When to save things in Bundle?

All activities have an onSaveInstanceState method that can be overridden. When this method is called, any state-related data should be placed into the outState Bundle. This method is called when an Activity is being backgrounded (either after onPause() or onStop(), depending on different factors).

```
70      }
71
72      @Override
73      protected void onSaveInstanceState(@NonNull Bundle outState) {
74          super.onSaveInstanceState(outState);
75          outState.putString("STRING_VALUE", myText);
76      }
77
```

What to Save

The savedInstanceState Bundle should only save information directly related to the current Activity state.
Example:

- User selections
- Scroll view positions
- User-submitted data

What not to Save

The following kinds of data should never be saved into the Bundle:

- Files
- Database data
- Images
- Videos
- Anything downloaded from the web
- Models

When SaveInstanceState is Useful?

There is one situation where using the savedInstanceState is almost mandatory: when the Activity gets destroyed during rotation. One way that Android handles rotation is to completely destroy and then re-create the current Activity. When the Activity is being destroyed, any state related information that is saved in onSaveInstanceState will be available when the Activity comes back online.

Another situation is when your Activity gets backgrounded. When an Activity is in a backgrounded state (either after onPause or onStop) it can be destroyed at any time with no notice. In the event that the OS kills your Activity without killing your Application, the OS will first save your outState Bundle so you can later return to your previous state.

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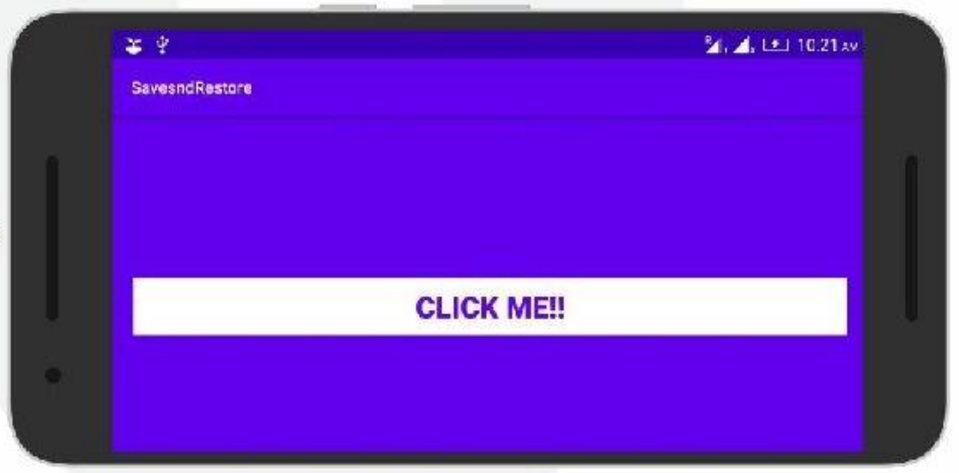
SaveInstanceState Example

Before using
SaveInstanceState

On Device
Rotation



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SaveInstanceState Example

After using
SaveInstanceState

On Device
Rotation

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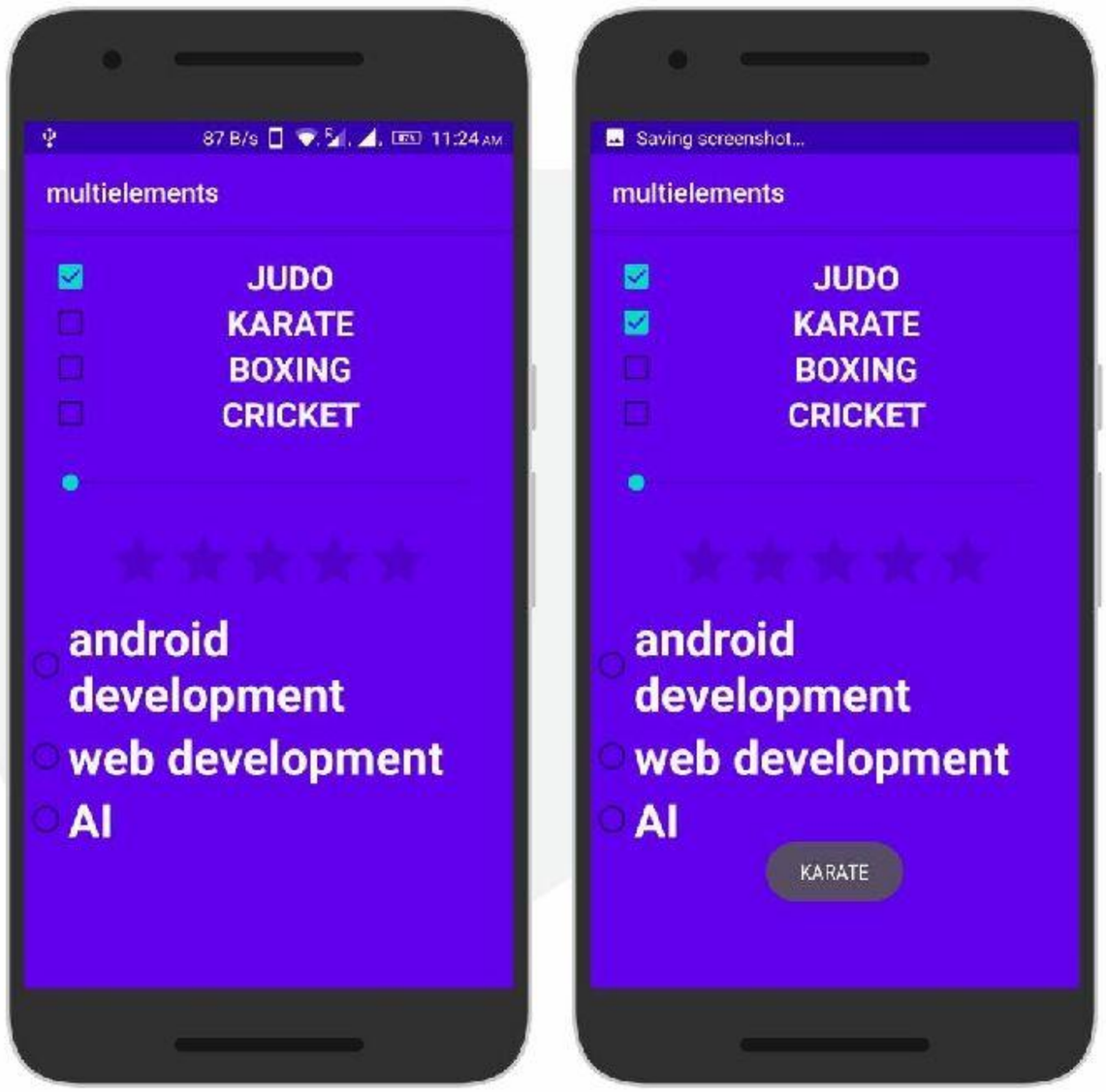
CheckBox

A CheckBox is an on/off switch that can be toggled by the user. You should use check-boxes when presenting users with a group of selectable options that are not mutually exclusive.



CheckBox Attributes

Inherited from **android.widget.TextView** Class

- **android:autoText**
- **android:drawableBottom**
- **android:drawableRight**
- **android:editable**
- **android:text**

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CheckBox Attributes

Inherited from **android.view.View** Class

- **android:background**
- **android:contentDescription**
- **android:id**
- **android:onClick**
- **android:visibility**

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Seek Bar

Seek Bar is one of the very useful user interface element in Android that allows the selection of integer values using a natural user interface. An example of Seek Bar is your device's brightness control and volume control.

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Seek Bar Methods

- **getMax**
- **getProgress**

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Seek Bar Attributes

- **android:id**
- **android:max**
- **android:progress**
- **android:indeterminate**

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Rating Bar

Rating bar is a subclass of absSeekbar class in android. It is used to show the rating on view Group or window manager.

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Radio Button

A RadioGroup class is used for set of radio buttons.
If we check one radio button that belongs to a radio group, it unchecks any previously checked radio button within the same group.

Radio Button Attributes

Inherited from **android.view.View** Class

- **android:background**
- **android:contentDescription**
- **android:id**
- **android:onClick**
- **android:visibility**

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Accessing Phones Services

Openin g Android Applicationthe URL in a Browsed from

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Accessing Phones Services

Making Call to Someone from Android Application.

Before we can call on any number, in order to access phones services we need to ask user permissions first.

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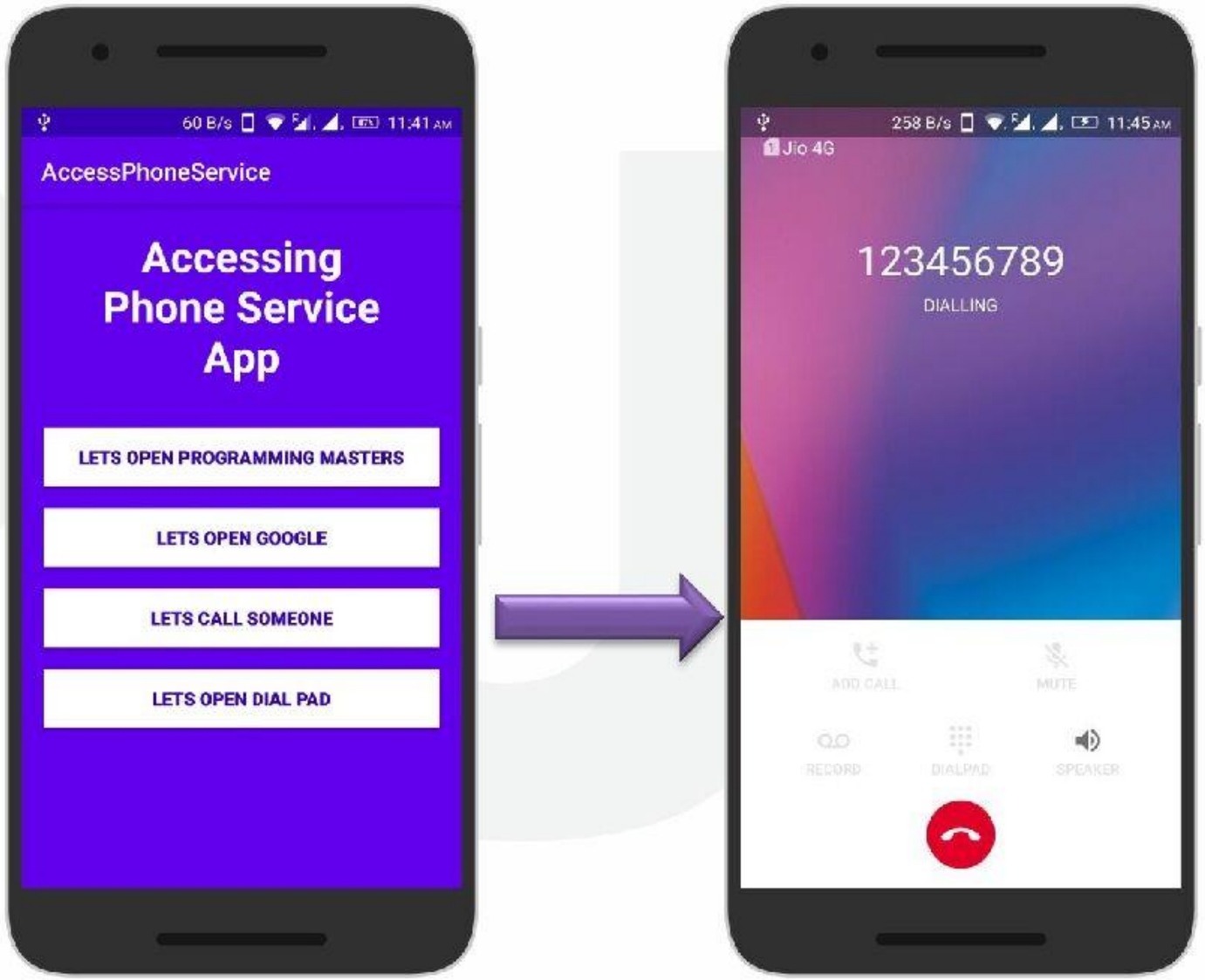
Accessing Phones Services

Now if the user has allowed the permission to make calls from the application, we can now use call functionality.



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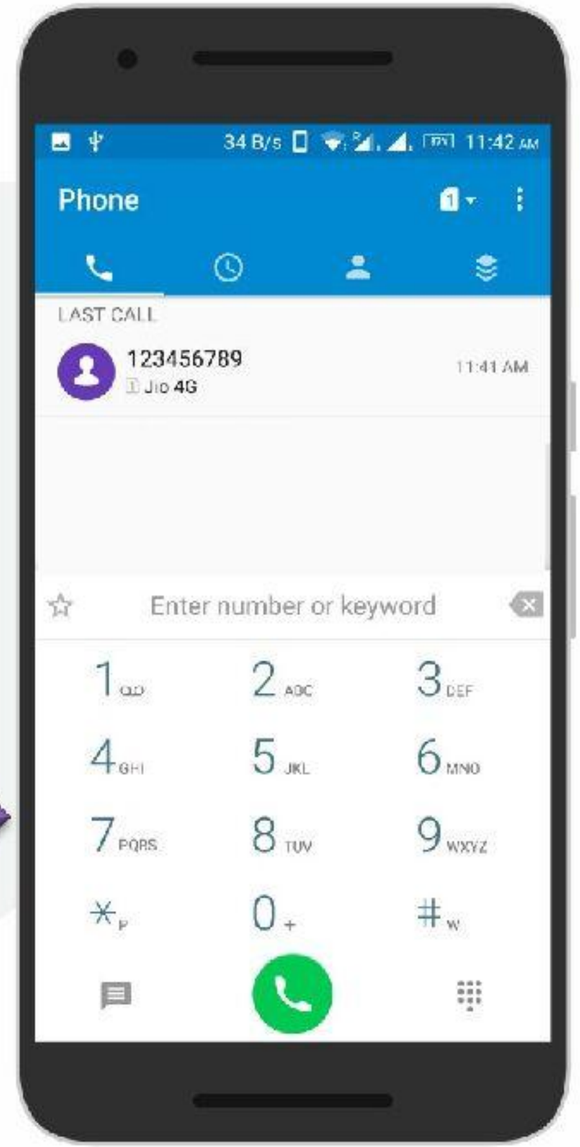
Accessing Phones Services

Same like calling someone from android application we also can open dialer pad of our mobile phone.



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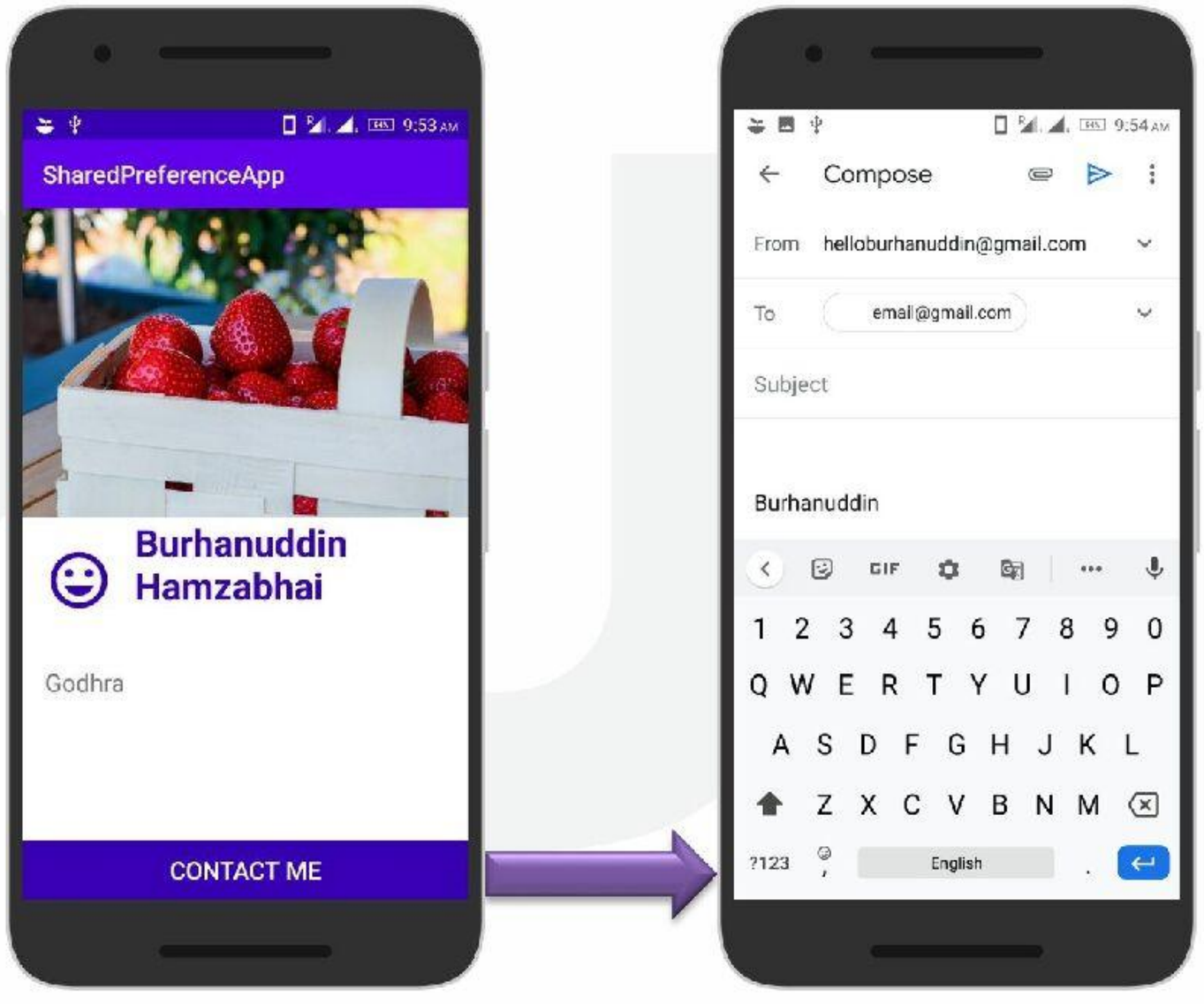
Accessing Phones Services

We also use mailing application, which will open the default email application of our android device.



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