Android Widgets

There are given a lot of **android widgets** with simplified examples such as Button, EditText, AutoCompleteTextView, ToggleButton, DatePicker, TimePicker, ProgressBar etc.

Android widgets are easy to learn. The widely used android widgets with examples are given below:

[Android Button](https://www.javatpoint.com/android-working-with-button)

Let's learn how to perform event handling on button click.

[Android Toast](https://www.javatpoint.com/android-toast-example)

Displays information for the short duration of time.

[Custom Toast](https://www.javatpoint.com/android-custom-toast-example)

We are able to customize the toast, such as we can display image on the toast

[ToggleButton](https://www.javatpoint.com/android-togglebutton-example)

It has two states ON/OFF.

[CheckBox](https://www.javatpoint.com/android-checkbox-example)

Let's see the application of simple food ordering.

[AlertDialog](https://www.javatpoint.com/android-alert-dialog-example)

AlertDialog displays a alert dialog containing the message with OK and Cancel buttons.

[Spinner](https://www.javatpoint.com/android-spinner-example)

Spinner displays the multiple options, but only one can be selected at a time.

[AutoCompleteTextView](https://www.javatpoint.com/android-autocompletetextview-example)

Let's see the simple example of AutoCompleteTextView.

[RatingBar](https://www.javatpoint.com/android-rating-bar-example)

RatingBar displays the rating bar.

[DatePicker](https://www.javatpoint.com/android-datepicker-example)

Datepicker displays the datepicker dialog that can be used to pick the date.

[TimePicker](https://www.javatpoint.com/android-timepicker-example)

TimePicker displays the timepicker dialog that can be used to pick the time.

[ProgressBar](https://www.javatpoint.com/android-progressbar-example)

ProgressBar displays progress task.

### ArrayAdapter

added in [API level 1](https://developer.android.com/guide/topics/manifest/uses-sdk-element.html#ApiLevels)

ArrayAdapter ([Context](https://developer.android.com/reference/android/content/Context.html) context,

int resource)

Constructor

|  |  |
| --- | --- |
| Parameters | |
| context | Context: The current context. |
| resource | int: The resource ID for a layout file containing a TextView to use when instantiating views. |

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ArrayAdapter ([Context](https://developer.android.com/reference/android/content/Context.html) context,

int resource,

int textViewResourceId)

Constructor

|  |  |
| --- | --- |
| Parameters | |
| context | Context: The current context. |
| resource | int: The resource ID for a layout file containing a layout to use when instantiating views. |
| textViewResourceId | int: The id of the TextView within the layout resource to be populated |

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ArrayAdapter ([Context](https://developer.android.com/reference/android/content/Context.html) context,

int resource,

T[] objects)

Constructor

|  |  |
| --- | --- |
| Parameters | |
| context | Context: The current context. |
| resource | int: The resource ID for a layout file containing a TextView to use when instantiating views. |
| objects | T: The objects to represent in the ListView. |

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Constructor

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| --- | --- |
| Parameters | |
| context | Context: The current context. |
| resource | int: The resource ID for a layout file containing a layout to use when instantiating views. |
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int resource,

[List](https://developer.android.com/reference/java/util/List.html)<T> objects)

Constructor

|  |  |
| --- | --- |
| Parameters | |
| context | Context: The current context. |
| resource | int: The resource ID for a layout file containing a TextView to use when instantiating views. |
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int resource,

int textViewResourceId,

[List](https://developer.android.com/reference/java/util/List.html)<T> objects)

Constructor

|  |  |
| --- | --- |
| Parameters | |
| context | Context: The current context. |
| resource | int: The resource ID for a layout file containing a layout to use when instantiating views. |
| textViewResourceId | int: The id of the TextView within the layout resource to be populated |
| objects | List: The objects to represent in the ListView. |

## Public methods

### add

added in [API level 1](https://developer.android.com/guide/topics/manifest/uses-sdk-element.html#ApiLevels)

void add (T object)

Adds the specified object at the end of the array.

|  |  |
| --- | --- |
| Parameters | |
| object | T: The object to add at the end of the array. |

### addAll

added in [API level 11](https://developer.android.com/guide/topics/manifest/uses-sdk-element.html#ApiLevels)

void addAll (T... items)

Adds the specified items at the end of the array.

|  |  |
| --- | --- |
| Parameters | |
| items | T: The items to add at the end of the array. |

### addAll

added in [API level 11](https://developer.android.com/guide/topics/manifest/uses-sdk-element.html#ApiLevels)

void addAll ([Collection](https://developer.android.com/reference/java/util/Collection.html)<? extends T> collection)

Adds the specified Collection at the end of the array.

|  |  |
| --- | --- |
| Parameters | |
| collection | Collection: The Collection to add at the end of the array. |

|  |  |
| --- | --- |
| Throws | |
| [UnsupportedOperationException](https://developer.android.com/reference/java/lang/UnsupportedOperationException.html) | if the addAll operation is not supported by this list |
| [ClassCastException](https://developer.android.com/reference/java/lang/ClassCastException.html) | if the class of an element of the specified collection prevents it from being added to this list |
| [NullPointerException](https://developer.android.com/reference/java/lang/NullPointerException.html) | if the specified collection contains one or more null elements and this list does not permit null elements, or if the specified collection is null |
| [IllegalArgumentException](https://developer.android.com/reference/java/lang/IllegalArgumentException.html) | if some property of an element of the specified collection prevents it from being added to this list |

### clear

added in [API level 1](https://developer.android.com/guide/topics/manifest/uses-sdk-element.html#ApiLevels)

void clear ()

Remove all elements from the list.

### createFromResource

added in [API level 1](https://developer.android.com/guide/topics/manifest/uses-sdk-element.html#ApiLevels)

[ArrayAdapter](https://developer.android.com/reference/android/widget/ArrayAdapter.html)<[CharSequence](https://developer.android.com/reference/java/lang/CharSequence.html)> createFromResource ([Context](https://developer.android.com/reference/android/content/Context.html) context,

int textArrayResId,

int textViewResId)

Creates a new ArrayAdapter from external resources. The content of the array is obtained through [getTextArray(int)](https://developer.android.com/reference/android/content/res/Resources.html" \l "getTextArray(int)).

|  |  |
| --- | --- |
| Parameters | |
| context | Context: The application's environment. |
| textArrayResId | int: The identifier of the array to use as the data source. |
| textViewResId | int: The identifier of the layout used to create views. |

|  |  |
| --- | --- |
| Returns | |
| [ArrayAdapter](https://developer.android.com/reference/android/widget/ArrayAdapter.html)<[CharSequence](https://developer.android.com/reference/java/lang/CharSequence.html)> | An ArrayAdapter. |

### getContext

added in [API level 1](https://developer.android.com/guide/topics/manifest/uses-sdk-element.html#ApiLevels)

[Context](https://developer.android.com/reference/android/content/Context.html) getContext ()

Returns the context associated with this array adapter. The context is used to create views from the resource passed to the constructor.

|  |  |
| --- | --- |
| Returns | |
| [Context](https://developer.android.com/reference/android/content/Context.html) | The Context associated with this adapter. |

### getCount

added in [API level 1](https://developer.android.com/guide/topics/manifest/uses-sdk-element.html#ApiLevels)

int getCount ()

How many items are in the data set represented by this Adapter.

|  |  |
| --- | --- |
| Returns | |
| int | Count of items. |

### getDropDownView

added in [API level 1](https://developer.android.com/guide/topics/manifest/uses-sdk-element.html#ApiLevels)

[View](https://developer.android.com/reference/android/view/View.html) getDropDownView (int position,

[View](https://developer.android.com/reference/android/view/View.html) convertView,

[ViewGroup](https://developer.android.com/reference/android/view/ViewGroup.html) parent)

Gets a [View](https://developer.android.com/reference/android/view/View.html) that displays in the drop down popup the data at the specified position in the data set.

|  |  |
| --- | --- |
| Parameters | |
| position | int: index of the item whose view we want. |
| convertView | View: the old view to reuse, if possible. Note: You should check that this view is non-null and of an appropriate type before using. If it is not possible to convert this view to display the correct data, this method can create a new view. |
| parent | ViewGroup: the parent that this view will eventually be attached to |

|  |  |
| --- | --- |
| Returns | |
| [View](https://developer.android.com/reference/android/view/View.html) | a [View](https://developer.android.com/reference/android/view/View.html) corresponding to the data at the specified position. |

### getDropDownViewTheme

added in [API level 23](https://developer.android.com/guide/topics/manifest/uses-sdk-element.html#ApiLevels)

[Resources.Theme](https://developer.android.com/reference/android/content/res/Resources.Theme.html) getDropDownViewTheme ()

Returns the value previously set by a call to [setDropDownViewTheme(Theme)](https://developer.android.com/reference/android/widget/ThemedSpinnerAdapter.html" \l "setDropDownViewTheme(android.content.res.Resources.Theme)).

|  |  |
| --- | --- |
| Returns | |
| [Resources.Theme](https://developer.android.com/reference/android/content/res/Resources.Theme.html) | the [Resources.Theme](https://developer.android.com/reference/android/content/res/Resources.Theme.html) against which drop-down views are inflated, or null if one has not been explicitly set |

### getFilter

added in [API level 1](https://developer.android.com/guide/topics/manifest/uses-sdk-element.html#ApiLevels)

[Filter](https://developer.android.com/reference/android/widget/Filter.html) getFilter ()

Returns a filter that can be used to constrain data with a filtering pattern.

This method is usually implemented by [Adapter](https://developer.android.com/reference/android/widget/Adapter.html) classes.

|  |  |
| --- | --- |
| Returns | |
| [Filter](https://developer.android.com/reference/android/widget/Filter.html) | a filter used to constrain data |

### getItem

added in [API level 1](https://developer.android.com/guide/topics/manifest/uses-sdk-element.html#ApiLevels)

T getItem (int position)

Get the data item associated with the specified position in the data set.

|  |  |
| --- | --- |
| Parameters | |
| position | int: Position of the item whose data we want within the adapter's data set. |

|  |  |
| --- | --- |
| Returns | |
| T | The data at the specified position. |

### getItemId

added in [API level 1](https://developer.android.com/guide/topics/manifest/uses-sdk-element.html#ApiLevels)

long getItemId (int position)

Get the row id associated with the specified position in the list.

|  |  |
| --- | --- |
| Parameters | |
| position | int: The position of the item within the adapter's data set whose row id we want. |

|  |  |
| --- | --- |
| Returns | |
| long | The id of the item at the specified position. |

### getPosition

added in [API level 1](https://developer.android.com/guide/topics/manifest/uses-sdk-element.html#ApiLevels)

int getPosition (T item)

Returns the position of the specified item in the array.

|  |  |
| --- | --- |
| Parameters | |
| item | T: The item to retrieve the position of. |

|  |  |
| --- | --- |
| Returns | |
| int | The position of the specified item. |

### getView

added in [API level 1](https://developer.android.com/guide/topics/manifest/uses-sdk-element.html#ApiLevels)

[View](https://developer.android.com/reference/android/view/View.html) getView (int position,

[View](https://developer.android.com/reference/android/view/View.html) convertView,

[ViewGroup](https://developer.android.com/reference/android/view/ViewGroup.html) parent)

Get a View that displays the data at the specified position in the data set. You can either create a View manually or inflate it from an XML layout file. When the View is inflated, the parent View (GridView, ListView...) will apply default layout parameters unless you use [inflate(int, android.view.ViewGroup, boolean)](https://developer.android.com/reference/android/view/LayoutInflater.html#inflate(int, android.view.ViewGroup, boolean)) to specify a root view and to prevent attachment to the root.

|  |  |
| --- | --- |
| Parameters | |
| position | int: The position of the item within the adapter's data set of the item whose view we want. |
| convertView | View: The old view to reuse, if possible. Note: You should check that this view is non-null and of an appropriate type before using. If it is not possible to convert this view to display the correct data, this method can create a new view. Heterogeneous lists can specify their number of view types, so that this View is always of the right type (see [getViewTypeCount()](https://developer.android.com/reference/android/widget/BaseAdapter.html" \l "getViewTypeCount()) and[getItemViewType(int)](https://developer.android.com/reference/android/widget/BaseAdapter.html#getItemViewType(int))). |
| parent | ViewGroup: The parent that this view will eventually be attached to |

|  |  |
| --- | --- |
| Returns | |
| [View](https://developer.android.com/reference/android/view/View.html) | A View corresponding to the data at the specified position. |

### insert

added in [API level 1](https://developer.android.com/guide/topics/manifest/uses-sdk-element.html#ApiLevels)

void insert (T object,

int index)

Inserts the specified object at the specified index in the array.

|  |  |
| --- | --- |
| Parameters | |
| object | T: The object to insert into the array. |
| index | int: The index at which the object must be inserted. |

### notifyDataSetChanged

added in [API level 1](https://developer.android.com/guide/topics/manifest/uses-sdk-element.html#ApiLevels)

void notifyDataSetChanged ()

Notifies the attached observers that the underlying data has been changed and any View reflecting the data set should refresh itself.

### remove

added in [API level 1](https://developer.android.com/guide/topics/manifest/uses-sdk-element.html#ApiLevels)

void remove (T object)

Removes the specified object from the array.

|  |  |
| --- | --- |
| Parameters | |
| object | T: The object to remove. |

### setDropDownViewResource

added in [API level 1](https://developer.android.com/guide/topics/manifest/uses-sdk-element.html#ApiLevels)

void setDropDownViewResource (int resource)

Sets the layout resource to create the drop down views.

|  |  |
| --- | --- |
| Parameters | |
| resource | int: the layout resource defining the drop down views |

**See also:**

* [getDropDownView(int, android.view.View, android.view.ViewGroup)](https://developer.android.com/reference/android/widget/ArrayAdapter.html#getDropDownView(int, android.view.View, android.view.ViewGroup))

### setDropDownViewTheme

added in [API level 23](https://developer.android.com/guide/topics/manifest/uses-sdk-element.html#ApiLevels)

void setDropDownViewTheme ([Resources.Theme](https://developer.android.com/reference/android/content/res/Resources.Theme.html) theme)

Sets the [Resources.Theme](https://developer.android.com/reference/android/content/res/Resources.Theme.html) against which drop-down views are inflated.

By default, drop-down views are inflated against the theme of the [Context](https://developer.android.com/reference/android/content/Context.html) passed to the adapter's constructor.

|  |  |
| --- | --- |
| Parameters | |
| theme | Resources.Theme: the theme against which to inflate drop-down views or null to use the theme from the adapter's context |

**See also:**

* [getDropDownView(int, View, ViewGroup)](https://developer.android.com/reference/android/widget/ArrayAdapter.html#getDropDownView(int, android.view.View, android.view.ViewGroup))

### setNotifyOnChange

added in [API level 1](https://developer.android.com/guide/topics/manifest/uses-sdk-element.html#ApiLevels)

void setNotifyOnChange (boolean notifyOnChange)

Control whether methods that change the list ([add(T)](https://developer.android.com/reference/android/widget/ArrayAdapter.html#add(T)), [addAll(Collection)](https://developer.android.com/reference/android/widget/ArrayAdapter.html" \l "addAll(java.util.Collection<? extends T>)), [addAll(Object[])](https://developer.android.com/reference/android/widget/ArrayAdapter.html" \l "addAll(T...)), [insert(T, int)](https://developer.android.com/reference/android/widget/ArrayAdapter.html#insert(T, int)), [remove(T)](https://developer.android.com/reference/android/widget/ArrayAdapter.html#remove(T)), [clear()](https://developer.android.com/reference/android/widget/ArrayAdapter.html#clear()),[sort(Comparator)](https://developer.android.com/reference/android/widget/ArrayAdapter.html#sort(java.util.Comparator<? super T>))) automatically call [notifyDataSetChanged()](https://developer.android.com/reference/android/widget/ArrayAdapter.html" \l "notifyDataSetChanged()). If set to false, caller must manually call notifyDataSetChanged() to have the changes reflected in the attached view. The default is true, and calling notifyDataSetChanged() resets the flag to true.

|  |  |
| --- | --- |
| Parameters | |
| notifyOnChange | boolean: if true, modifications to the list will automatically call [notifyDataSetChanged()](https://developer.android.com/reference/android/widget/ArrayAdapter.html" \l "notifyDataSetChanged()) |

### sort

added in [API level 3](https://developer.android.com/guide/topics/manifest/uses-sdk-element.html#ApiLevels)

void sort ([Comparator](https://developer.android.com/reference/java/util/Comparator.html)<? super T> comparator)

Sorts the content of this adapter using the specified comparator.

|  |  |
| --- | --- |
| Parameters | |
| comparator | Comparator: The comparator used to sort the objects contained in this adapter. |