**How Android Resolves Intent Filters**

The anonymous nature of runtime binding makes it important to understand how Android resolves an implicit Intent into a particular application component.

As you saw previously, when using `startActivity`, the implicit Intent resolves to a single Activity. If there are multiple Activities capable of performing the given action on the specified data, the “best” of those Activities will be launched.

The process of deciding which Activity to start is called *Intent resolution*. The aim of Intent resolution is to find the best Intent Filter match possible using the following process:

1. Android puts together a list of all the Intent Filters available from the installed packages.

2. Intent Filters that do not match the action or category associated with the Intent being resolved are removed from the list.
   
   2.1. Action matches are made if the Intent Filter either includes the specified action or has no action specified.
   
   An Intent Filter will only fail the action match check if it has one or more actions defined, where none of them match the action specified by the Intent.

   2.2. Category matching is stricter. Intent Filters must include all the categories defined in the resolving Intent. An Intent Filter with no categories specified only matches Intents with no categories.

3. Finally, each part of the Intent’s data URI is compared to the Intent Filter’s data tag. If Intent Filter defines the scheme, host/authority, path, or mime type, these values are compared to the Intent’s URI. Any mismatches will remove the Intent Filter from the list.

   Specifying no data values in an Intent Filter will match with all Intent data values.

   3.1. The mime type is the data type of the data being matched. When matching data types, you can use wildcards to match subtypes (e.g., `earthquakes/*`). If the Intent Filter specifies a data type, it must match the Intent; specifying no data type resolves to all of them.

   3.2. The scheme is the “protocol” part of the URI — for example, `http:`, `mailto:`, or `tel:`.

   3.3. The host name or “data authority” is the section of the URI between the scheme and the path (e.g., `www.google.com`). For a host name to match, the Intent Filter’s scheme must also pass.

   3.4. The data path is what comes after the authority (e.g., `/ig`). A path can only match if the scheme and host-name parts of the data tag also match.

4. If more than one component is resolved from this process, they are ordered in terms of priority, with an optional tag that can be added to the Intent Filter node. The highest ranking component is then returned.

   Native Android application components are part of the Intent resolution process in exactly the same way as third-party applications. They do not have a higher priority and can be completely replaced with new Activities that declare Intent Filters that service the same action requests.