

# Software Engineering Large Practical

## Feedback on Part 1 of the SELP

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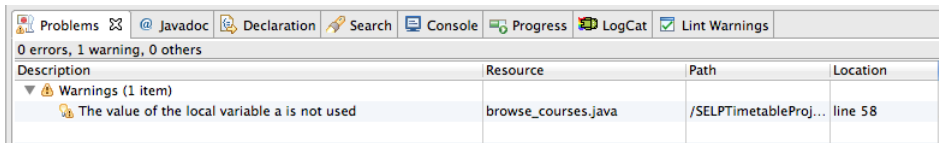
## Feedback on Part 1 of the SELP

The submissions for Part 1 of the SELP are necessarily incomplete. Some of them contained problems which obviously should be fixed before Part 2 is submitted. Nonetheless, these are pointed out below in case some of them were not thought to be problems which needed to be fixed.

# Java problems

Some submitted projects had Java problems. These are often relatively easy to fix, and simply require knowledge of the Java language and its libraries. The fixes which need to be applied here are general ones which would be relevant for any Java application: there is nothing Android-specific about them.

# Java: Unused variable errors



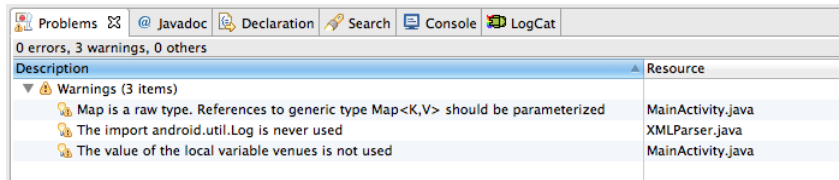
The screenshot shows the 'Problems' view in an IDE. The toolbar includes icons for Problems, Javadoc, Declaration, Search, Console, Progress, LogCat, and Lint Warnings. The status bar indicates '0 errors, 1 warning, 0 others'. A table below lists the warning details.

Description	Resource	Path	Location
▼ ⚠ Warnings (1 item)			
🔔 The value of the local variable a is not used	browse_courses.java	/SELPTimetableProj...	line 58

# Java: static analysis errors

Problems	
Description	Resource
30 errors, 24 warnings, 0 others	
R cannot be resolved to a variable	main_table_view.java
R cannot be resolved to a variable	UserCourseView.java
R cannot be resolved to a variable	UserCourseView.java
R cannot be resolved to a variable	UserCourseView.java
R cannot be resolved to a variable	UserCourseView.java
R cannot be resolved to a variable	UserCourseView.java
Warnings (24 items)	
The import java.io.File is never used	Course.java
The import java.net.URL is never used	Database.java
The import java.net.URLConnection is never used	Database.java
The import java.util.ArrayList is never used	Course.java
The import javax.xml.parsers.DocumentBuilder is never used	Course.java
The import javax.xml.parsers.DocumentBuilderFactory is never used	Course.java
The import org.w3c.dom.Document is never used	Course.java
The import org.w3c.dom.Element is never used	Course.java
The import org.w3c.dom.Node is never used	Course.java
The import org.w3c.dom.NodeList is never used	Course.java
The method getRequestParameters() from the type Main_table_view is never used locally	Main_table_view.java
The static method format(CharSequence, Date) from the type DateFormat should be accessed in a static way	Main_table_view.java
The static method format(CharSequence, Date) from the type DateFormat should be accessed in a static way	Main_table_view.java
The static method format(CharSequence, Date) from the type DateFormat should be accessed in a static way	Main_table_view.java
The value of the field Database.courses_url is not used	Database.java
The value of the field Database.timetable_url is not used	Database.java
The value of the field Database.venues_url is not used	Database.java
The value of the field Main_table_view.GridCellAdapter.weekdays is not used	Main_table_view.java
The value of the local variable leadSpaces is not used	Main_table_view.java
The value of the local variable semester1End is not used	Database.java

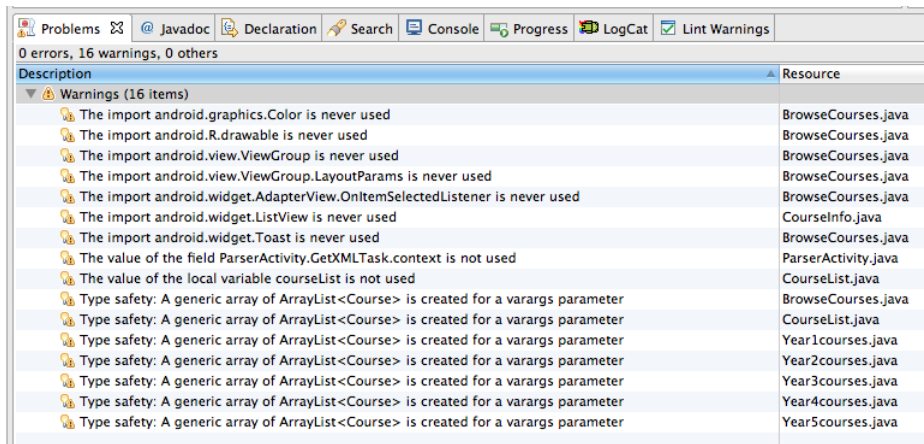
# Java: should use generic classes correctly, don't use raw types



The screenshot shows the 'Problems' window in an IDE. The toolbar includes icons for Problems, Javadoc, Declaration, Search, Console, and LogCat. The status bar indicates '0 errors, 3 warnings, 0 others'. The main area is divided into two columns: 'Description' and 'Resource'. Under 'Warnings (3 items)', the following items are listed:

Description	Resource
Map is a raw type. References to generic type Map<K,V> should be parameterized	MainActivity.java
The import android.util.Log is never used	XMLParser.java
The value of the local variable venues is not used	MainActivity.java

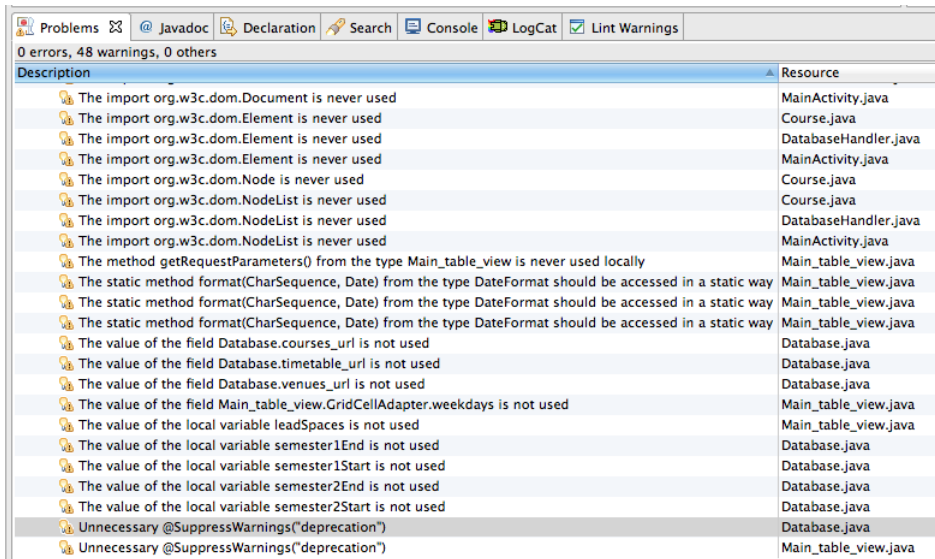
# Java: Type safety warnings on generic parameters



0 errors, 16 warnings, 0 others

Description	Resource
▼ ⚠ Warnings (16 items)	
⚠ The import android.graphics.Color is never used	BrowseCourses.java
⚠ The import android.R.drawable is never used	BrowseCourses.java
⚠ The import android.view.ViewGroup is never used	BrowseCourses.java
⚠ The import android.view.ViewGroup.LayoutParams is never used	BrowseCourses.java
⚠ The import android.widget.AdapterView.OnItemClickListener is never used	BrowseCourses.java
⚠ The import android.widget.ListView is never used	CourseInfo.java
⚠ The import android.widget.Toast is never used	BrowseCourses.java
⚠ The value of the field ParserActivity.GetXMLTask.context is not used	ParserActivity.java
⚠ The value of the local variable courseList is not used	CourseList.java
⚠ Type safety: A generic array of ArrayList<Course> is created for a varargs parameter	BrowseCourses.java
⚠ Type safety: A generic array of ArrayList<Course> is created for a varargs parameter	CourseList.java
⚠ Type safety: A generic array of ArrayList<Course> is created for a varargs parameter	Year1courses.java
⚠ Type safety: A generic array of ArrayList<Course> is created for a varargs parameter	Year2courses.java
⚠ Type safety: A generic array of ArrayList<Course> is created for a varargs parameter	Year3courses.java
⚠ Type safety: A generic array of ArrayList<Course> is created for a varargs parameter	Year4courses.java
⚠ Type safety: A generic array of ArrayList<Course> is created for a varargs parameter	Year5courses.java

# Java: Suppressing warnings is not usually the right way to solve a problem, but don't suppress unnecessarily



0 errors, 48 warnings, 0 others

Description	Resource
The import org.w3c.dom.Document is never used	MainActivity.java
The import org.w3c.dom.Element is never used	Course.java
The import org.w3c.dom.Element is never used	DatabaseHandler.java
The import org.w3c.dom.Element is never used	MainActivity.java
The import org.w3c.dom.Node is never used	Course.java
The import org.w3c.dom.NodeList is never used	Course.java
The import org.w3c.dom.NodeList is never used	DatabaseHandler.java
The import org.w3c.dom.NodeList is never used	MainActivity.java
The method getRequestParameters() from the type Main_table_view is never used locally	Main_table_view.java
The static method format(CharSequence, Date) from the type DateFormat should be accessed in a static way	Main_table_view.java
The static method format(CharSequence, Date) from the type DateFormat should be accessed in a static way	Main_table_view.java
The static method format(CharSequence, Date) from the type DateFormat should be accessed in a static way	Main_table_view.java
The value of the field Database.courses_url is not used	Database.java
The value of the field Database.timetable_url is not used	Database.java
The value of the field Database.venues_url is not used	Database.java
The value of the field Main_table_view.GridCellAdapter.weekdays is not used	Main_table_view.java
The value of the local variable leadSpaces is not used	Main_table_view.java
The value of the local variable semester1End is not used	Database.java
The value of the local variable semester1Start is not used	Database.java
The value of the local variable semester2End is not used	Database.java
The value of the local variable semester2Start is not used	Database.java
Unnecessary @SuppressWarnings("deprecation")	Database.java
Unnecessary @SuppressWarnings("deprecation")	Main_table_view.java



## Java: avoid deprecation, don't write legacy code

```
});  
dialog.show();  
dialog.getWindow().setLayout(LayoutParams.FILL_PARENT, LayoutParams.FILL_PARENT);  
} else  
,
```

Java: “Static method should be accessed in a static way”—use the class name, not the object name

```
currentMonth = (Button) this.findViewById(R.id.currentMonth);  
currentMonth.setText(dateFormatter.format(dateTemplate, _calendar.getTime()));
```

Problems @ Javadoc Declaration Search Console LogCat Lint Warnings

1 error, 97 warnings, 0 others

Description

Resource

The static method format(CharSequence, Date) from the type DateFormat should be accessed in a static way Main\_table\_view.java

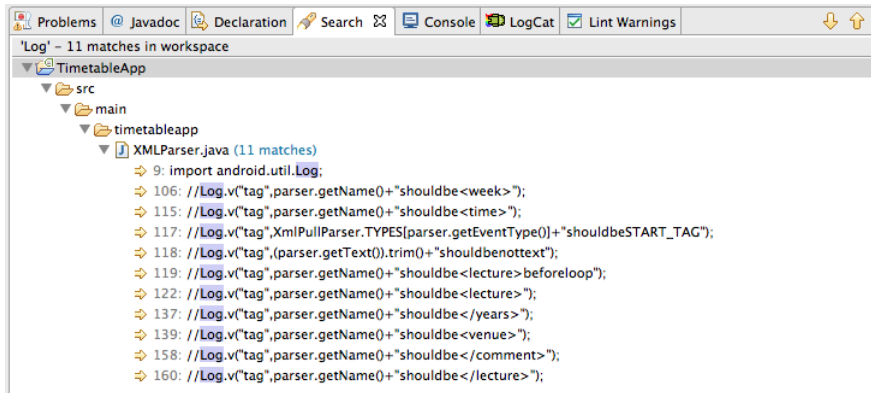
## Java: Exception handling—you should treat different cases differently

```
} catch (ParserConfigurationException e) {  
    Log.e("Error: ", e.getMessage(), e);  
    return null;  
}  
} catch (SAXException e) {  
    Log.e("Error: ", e.getMessage(), e);  
    return null;  
}  
} catch (IOException e) {  
    Log.e("Error: ", e.getMessage(), e);  
    return null;  
}  
}
```

## Logging problems

The practical asks you to include logging in your app. Logging has many purposes, including debugging, and giving information messages and error messages. The value which is brought by logging depends on how useful the text string supplied is, and whether it can be traced back to the class which generated it.

# Logging: had logging, took it out when the code was working



The screenshot shows an IDE interface with a search bar at the top containing the text 'Log'. Below the search bar, a list of search results is displayed for the file XMLParser.java. The results are numbered lines of code, each starting with a blue arrow icon. The code snippets show various uses of the android.util.Log class, including imports and several calls to Log.v() with different tags and messages.

```
'Log' - 11 matches in workspace
▼ TimetableApp
  ▼ src
    ▼ main
      ▼ timetableapp
        ▼ XMLParser.java (11 matches)
          ⇒ 9: import android.util.Log;
          ⇒ 106: //Log.v("tag",parser.getName()+"shouldbe<week>");
          ⇒ 115: //Log.v("tag",parser.getName()+"shouldbe<time>");
          ⇒ 117: //Log.v("tag",XmlPullParser.TYPES[parser.getEventType()+"shouldbeSTART_TAG");
          ⇒ 118: //Log.v("tag",(parser.getText()).trim()+"shouldbenottext");
          ⇒ 119: //Log.v("tag",parser.getName()+"shouldbe<lecture>beforeloop");
          ⇒ 122: //Log.v("tag",parser.getName()+"shouldbe<lecture>");
          ⇒ 137: //Log.v("tag",parser.getName()+"shouldbe</years>");
          ⇒ 139: //Log.v("tag",parser.getName()+"shouldbe<venue>");
          ⇒ 158: //Log.v("tag",parser.getName()+"shouldbe</comment>");
          ⇒ 160: //Log.v("tag",parser.getName()+"shouldbe</lecture>");
```

# Logging: Commenting out the debug statements

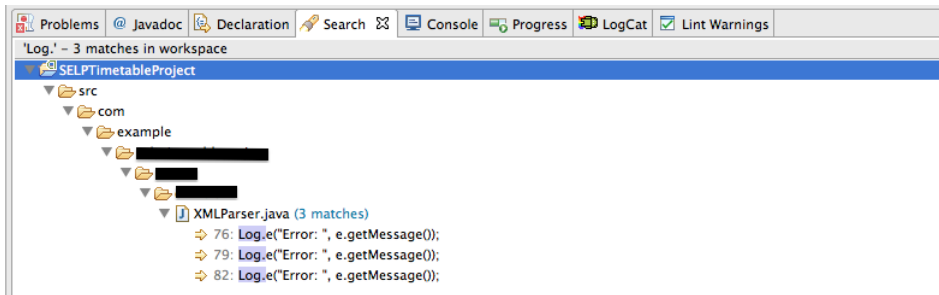
Problems @ Javadoc Declaration Search Console Progress LogCat Lint Warnings

'Log.' - 18 matches in workspace

InfTimetable

- src
  - [redacted]
  - [redacted]
  - [redacted]
  - Main\_table\_view.java (7 matches)
    - 60: Log.d(tag, "+++++----->" + extras.getString("params"));
    - 166: Log.d(tag, "Month: " + month + " " + "Year: " + year);
    - 251: Log.d(tag, "NEXT MONTH:= " + months[nextMonth]);
    - 265: //Log.d(tag, "getView ..." + list);
    - 270: //Log.d(tag, "Starting XML Row Inflation ... ");
    - 274: //Log.d(tag, "Successfully completed XML Row Inflation!");
    - 286: //Log.d(tag, "Current Day: " + currentDayOfMonth);
- [redacted]
- [redacted]
- model
  - CourseSelectionManager.java (2 matches)
    - 49: Log.e(TAG, "Could not load JSON array");
    - 61: Log.d(TAG, "Serialized JSON result: " + result);
  - DatabaseManager.java (5 matches)
    - 94: Log.i(TAG, "Data loaded from files");
    - 97: Log.e(TAG, "Could not load data from files", e);
    - 112: Log.i(TAG, "Database populated");
    - 129: Log.i(TAG, "Data loaded from network");
    - 131: Log.e(TAG, "Failed to parse data", e);
  - CourseListAdapter.java
    - 43: Log.i(TAG, "Database change detected");
  - FileDownloadTask.java (2 matches)

# Logging: Not enough logging

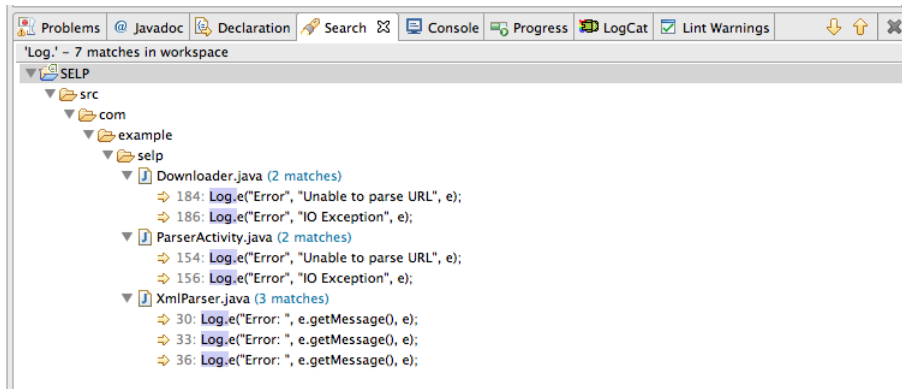


The screenshot shows an IDE search results window for the query 'Log.'. The results are displayed in a tree view under the project 'SELPTimetableProject'. The tree structure is as follows:

- src
  - com
    - example
      - [Redacted]
      - [Redacted]
      - [Redacted]
      - XMLParser.java (3 matches)
        - 76: `Log.e("Error: ", e.getMessage());`
        - 79: `Log.e("Error: ", e.getMessage());`
        - 82: `Log.e("Error: ", e.getMessage());`

The search results show three matches for the `Log.e` method in `XMLParser.java`, all with the message `"Error: "`. The matches are located at lines 76, 79, and 82.

# Logging: Use TAG to identify the class which is logging



The screenshot shows an IDE search results window for the query 'Log.'. The window title is 'Log.' - 7 matches in workspace. The search results are organized into a tree view under the package 'SELP'. The tree structure is as follows:

- SELP
  - src
    - com
      - example
        - selp
          - Downloader.java (2 matches)
            - 184: Log.e("Error", "Unable to parse URL", e);
            - 186: Log.e("Error", "IO Exception", e);
          - ParserActivity.java (2 matches)
            - 154: Log.e("Error", "Unable to parse URL", e);
            - 156: Log.e("Error", "IO Exception", e);
          - XmlParser.java (3 matches)
            - 30: Log.e("Error: ", e.getMessage(), e);
            - 33: Log.e("Error: ", e.getMessage(), e);
            - 36: Log.e("Error: ", e.getMessage(), e);



# Logging: making progress

Problems @ Javadoc Declaration Search Console LogCat Lint Warnings

'Log' - 13 matches in workspace

- ▼ Timetable
  - ▼ src
    - ▼ [REDACTED]
      - ▼ timetable
        - ▼ DbHelper.java (2 matches)
          - ⇒ 8: import android.util.Log;
          - ⇒ 97: Log.i("onCreate() called", "Attempted to make DB");
        - ▼ DownloaderTask.java (6 matches)
          - ⇒ 13: import android.util.Log;
          - ⇒ 132: Log.e("ERROR:", e.getMessage());
          - ⇒ 152: Log.e("ERROR:", e.getMessage());
          - ⇒ 169: Log.i("DownloaderTask", "Files created for first time!");
          - ⇒ 185: Log.i("DownloaderTask", "Files were changed!");
          - ⇒ 198: Log.i("DownloaderTask", "Files have remained consistent.");
        - ▼ PopulateTablesTask.java (5 matches)
          - ⇒ 12: import android.util.Log;
          - ⇒ 122: Log.e("populateCoursesTable", e.getMessage());
          - ⇒ 185: Log.e("populateCoursesTable", e.getMessage());
          - ⇒ 245: Log.e("populateCoursesTable", e.getMessage());
          - ⇒ 333: Log.e("populateCoursesTable", e.getMessage());

# Logging: Good style

The screenshot shows an IDE interface with a search bar at the top containing the text 'Log.'. Below the search bar, a toolbar includes icons for Problems, Javadoc, Declaration, Search, Console, Progress, LogCat, and Lint Warnings. The search results are displayed in a tree view under the project 'InfTimetable'. The tree structure is as follows:

- src
  - com
    - [Redacted]
    - [Redacted]
      - model
        - CourseSelectionManager.java (2 matches)
          - 49: Log.e(TAG, "Could not load JSON array");
          - 61: Log.d(TAG, "Serialized JSON result: " + result);
        - DatabaseManager.java (5 matches)
          - 94: Log.i(TAG, "Data loaded from files");
          - 97: Log.e(TAG, "Could not load data from files", e);
          - 112: Log.i(TAG, "Database populated");
          - 129: Log.i(TAG, "Data loaded from network");
          - 131: Log.e(TAG, "Failed to parse data", e);
        - CourseListAdapter.java
          - 43: Log.i(TAG, "Database change detected");
        - FileDownloadTask.java (2 matches)
          - 77: Log.e(TAG, "Wrong response code");
          - 127: Log.e(TAG, "Failed to save the data to files", e);
        - TimetableEventListAdapter.java
          - 50: Log.i(TAG, "Database or selection change detected");

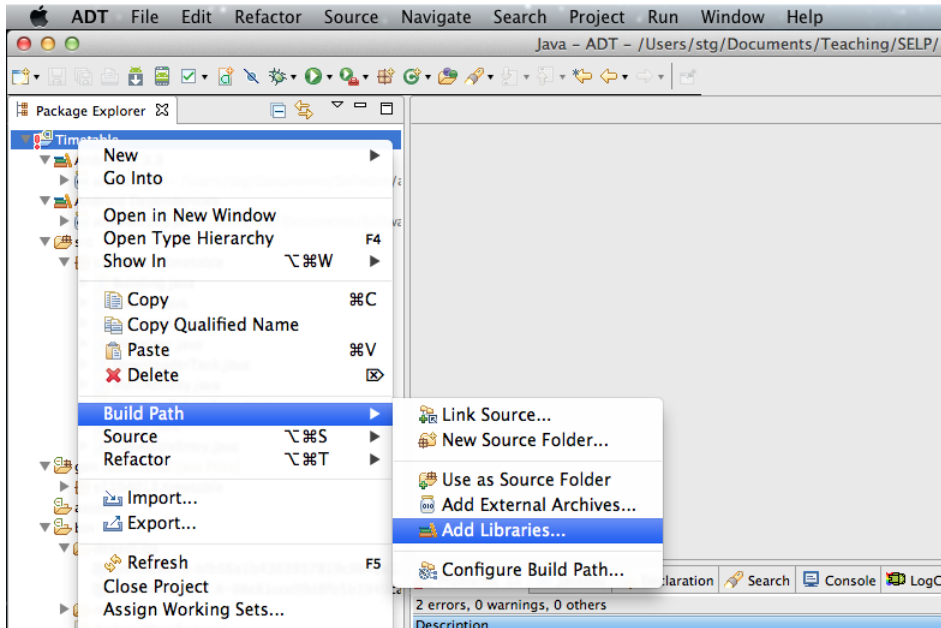
# Structure problems

Android projects must be structured correctly to allow them to be compiled by Eclipse.

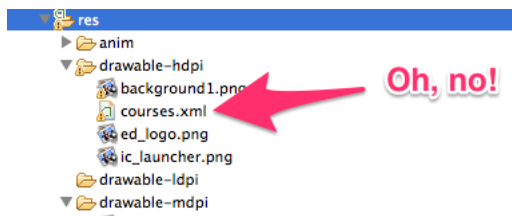
- ▶ Java files have their place (in src).
- ▶ XML files have their place (in res/layout).
- ▶ Image files have their place (in res/drawable).

Drag-and-drop errors which move files into the wrong location can prevent your project from compiling at all.

# Structure: add libraries to your project



Structure: courses.xml in the wrong place; this shouldn't be in res/drawable



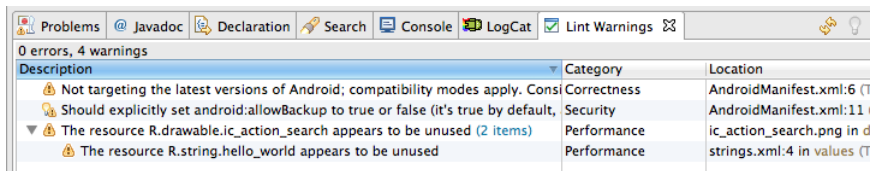
# Android Lint

Eclipse provides a service to debug the non-Java part of an Android project, called [Android Lint](#).





Android Lint looks for problems and bad style in XML parts of the project, and lack of integration with the Java part. Issues checked include:

- ▶ Performance,
- ▶ Correctness,
- ▶ Usability,
- ▶ Security,
- ▶ Internationalisation, and others.

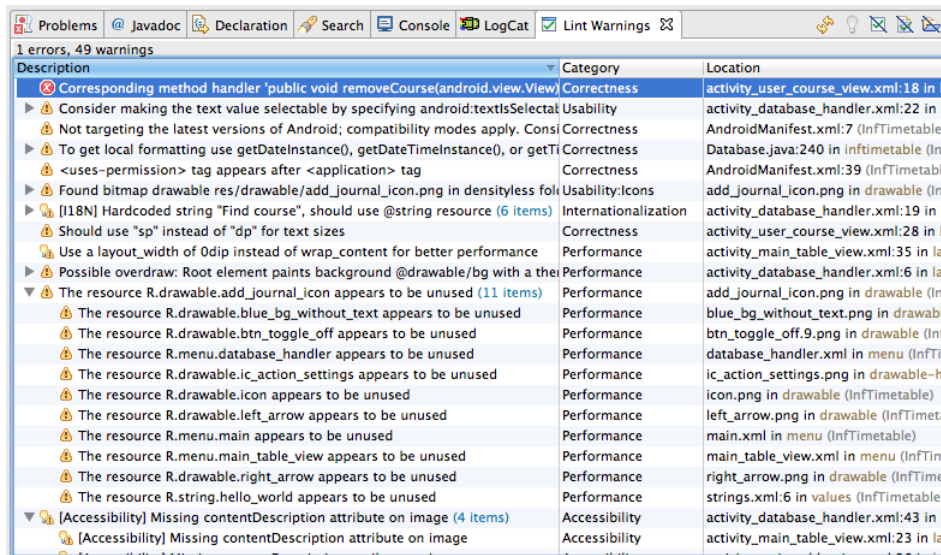
# Lint: security warnings


























The screenshot shows the 'Lint Warnings' panel in an IDE. The panel title is '0 errors, 4 warnings'. Below the title is a table with three columns: 'Description', 'Category', and 'Location'. The first row has a warning icon and the text 'Not targeting the latest versions of Android; compatibility modes apply. Consider using the latest versions of Android that are supported by your target device.' The second row has a warning icon and the text 'Should explicitly set android:allowBackup to true or false (it's true by default, but false is recommended for security reasons)'. The third row is expanded, showing two warnings: 'The resource R.drawable.ic\_action\_search appears to be unused (2 items)' and 'The resource R.string.hello\_world appears to be unused'. The 'Category' column contains 'Correctness', 'Security', and 'Performance'. The 'Location' column contains file names and line numbers.

Description	Category	Location
 Not targeting the latest versions of Android; compatibility modes apply. Consider using the latest versions of Android that are supported by your target device.	Correctness	AndroidManifest.xml:6 (T
 Should explicitly set android:allowBackup to true or false (it's true by default, but false is recommended for security reasons)	Security	AndroidManifest.xml:11 (
 The resource R.drawable.ic_action_search appears to be unused (2 items)	Performance	ic_action_search.png in d
 The resource R.string.hello_world appears to be unused	Performance	strings.xml:4 in values (T

# Lint: Error; missing method handler

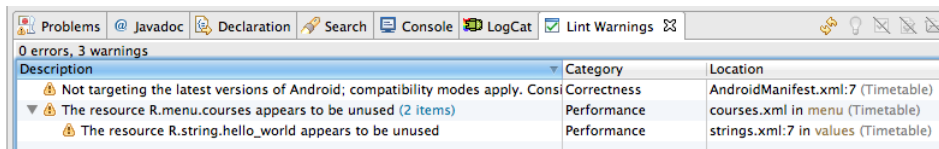


1 errors, 49 warnings

Description	Category	Location
 Corresponding method handler 'public void removeCourse(android.view.View)' is missing	Correctness	activity_user_course_view.xml:18 in la
 Consider making the text value selectable by specifying android:textIsSelectable	Usability	activity_database_handler.xml:22 in la
 Not targeting the latest versions of Android; compatibility modes apply. Consider	Correctness	AndroidManifest.xml:7 (InfTimetable)
 To get local formatting use getDateInstance(), getDateTimelInstance(), or getT	Correctness	Database.java:240 in inf timetable (In
 <uses-permission> tag appears after <application> tag	Correctness	AndroidManifest.xml:39 (InfTimetable)
 Found bitmap drawable res/drawable/add_journal_icon.png in densityless folder	Usability:Icons	add_journal_icon.png in drawable (In
 [I18N] Hardcoded string "Find course", should use @string resource (6 items)	Internationalization	activity_database_handler.xml:19 in la
 Should use "sp" instead of "dp" for text sizes	Correctness	activity_user_course_view.xml:28 in la
 Use a layout_width of 0dip instead of wrap_content for better performance	Performance	activity_main_table_view.xml:35 in la
 Possible overdraw: Root element paints background @drawable/bg with a theme	Performance	activity_database_handler.xml:6 in la
 The resource R.drawable.add_journal_icon appears to be unused (11 items)	Performance	add_journal_icon.png in drawable (In
 The resource R.drawable.blue_bg_without_text appears to be unused	Performance	blue_bg_without_text.png in drawabl
 The resource R.drawable.btn_toggle_off appears to be unused	Performance	btn_toggle_off.9.png in drawable (In
 The resource R.menu.database_handler appears to be unused	Performance	database_handler.xml in menu (InfTi
 The resource R.drawable.ic_action_settings appears to be unused	Performance	ic_action_settings.png in drawable-h
 The resource R.drawable.icon appears to be unused	Performance	icon.png in drawable (InfTimetable)
 The resource R.drawable.left_arrow appears to be unused	Performance	left_arrow.png in drawable (InfTimet
 The resource R.menu.main appears to be unused	Performance	main.xml in menu (InfTimetable)
 The resource R.menu.main_table_view appears to be unused	Performance	main_table_view.xml in menu (InfTim
 The resource R.drawable.right_arrow appears to be unused	Performance	right_arrow.png in drawable (InfTime
 The resource R.string.hello_world appears to be unused	Performance	strings.xml:6 in values (InfTimetable)
 [Accessibility] Missing contentDescription attribute on image (4 items)	Accessibility	activity_database_handler.xml:43 in la
 [Accessibility] Missing contentDescription attribute on image	Accessibility	activity_main_table_view.xml:23 in la



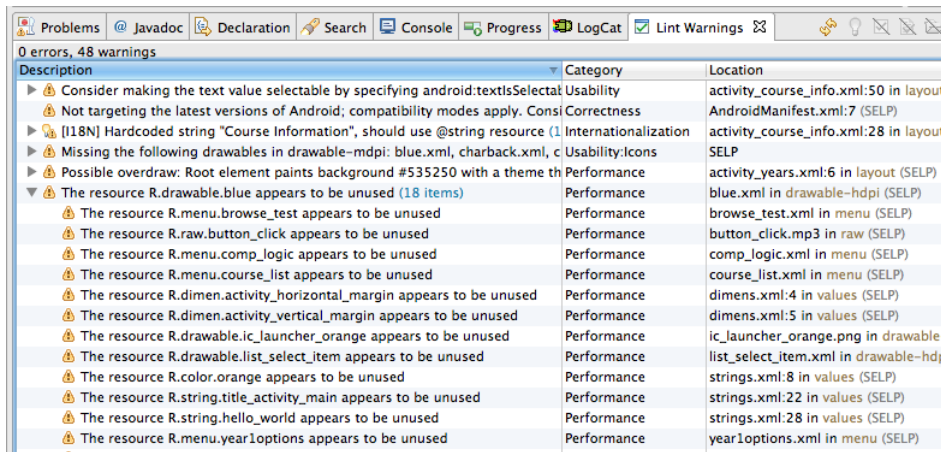
# Lint: a few minor problems



The screenshot shows the 'Lint Warnings' panel in an IDE. The panel title is '0 errors, 3 warnings'. It contains a table with three rows of warnings. The first row is expanded, showing a warning about targeting Android versions. The second and third rows are collapsed, showing warnings about unused resources.

Description	Category	Location
⚠ Not targeting the latest versions of Android; compatibility modes apply. Consider using <code>targetSdkVersion</code> to target the latest version of Android.	Correctness	AndroidManifest.xml:7 (Timetable)
⚠ The resource <code>R.menu.courses</code> appears to be unused (2 items)	Performance	courses.xml in menu (Timetable)
⚠ The resource <code>R.string.hello_world</code> appears to be unused	Performance	strings.xml:7 in values (Timetable)

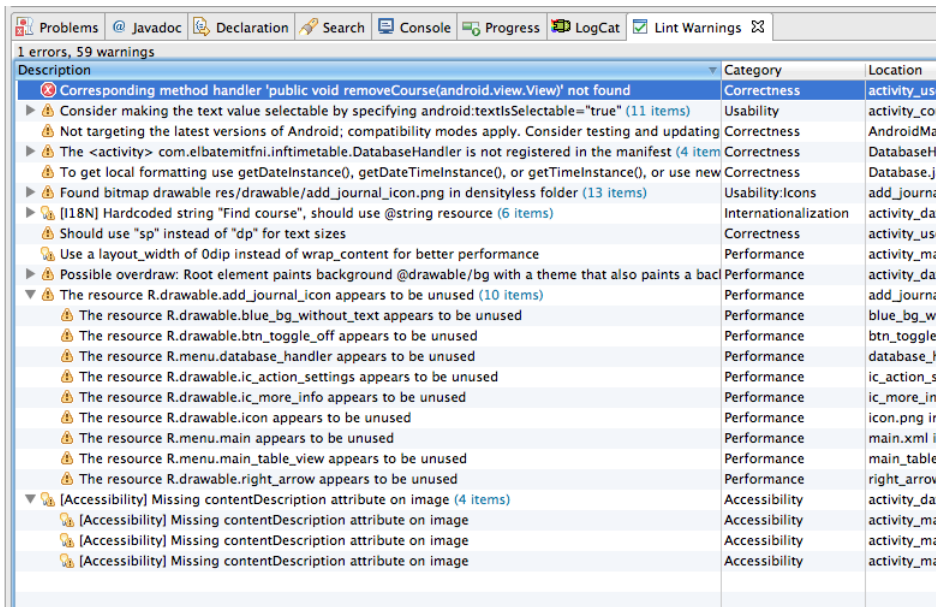
# Lint: "The resource appears to be unused"



0 errors, 48 warnings

Description	Category	Location
▶ Consider making the text value selectable by specifying android:textIsSelectable	Usability	activity_course_info.xml:50 in layout
⚠ Not targeting the latest versions of Android; compatibility modes apply. Consider	Correctness	AndroidManifest.xml:7 (SELP)
▶ [I18N] Hardcoded string "Course Information", should use @string resource (1	Internationalization	activity_course_info.xml:28 in layout
▶ ⚠ Missing the following drawables in drawable-mdpi: blue.xml, charback.xml, c	Usability:Icons	SELP
▶ ⚠ Possible overdraw: Root element paints background #535250 with a theme th	Performance	activity_years.xml:6 in layout (SELP)
▼ ⚠ The resource R.drawable.blue appears to be unused (18 items)	Performance	blue.xml in drawable-hdpi (SELP)
⚠ The resource R.menu.browse_test appears to be unused	Performance	browse_test.xml in menu (SELP)
⚠ The resource R.raw.button_click appears to be unused	Performance	button_click.mp3 in raw (SELP)
⚠ The resource R.menu.comp_logic appears to be unused	Performance	comp_logic.xml in menu (SELP)
⚠ The resource R.menu.course_list appears to be unused	Performance	course_list.xml in menu (SELP)
⚠ The resource R.dimen.activity_horizontal_margin appears to be unused	Performance	dimens.xml:4 in values (SELP)
⚠ The resource R.dimen.activity_vertical_margin appears to be unused	Performance	dimens.xml:5 in values (SELP)
⚠ The resource R.drawable.ic_launcher_orange appears to be unused	Performance	ic_launcher_orange.png in drawable
⚠ The resource R.drawable.list_select_item appears to be unused	Performance	list_select_item.xml in drawable-hd
⚠ The resource R.color.orange appears to be unused	Performance	strings.xml:8 in values (SELP)
⚠ The resource R.string.title_activity_main appears to be unused	Performance	strings.xml:22 in values (SELP)
⚠ The resource R.string.hello_world appears to be unused	Performance	strings.xml:28 in values (SELP)
⚠ The resource R.menu.year1options appears to be unused	Performance	year1options.xml in menu (SELP)

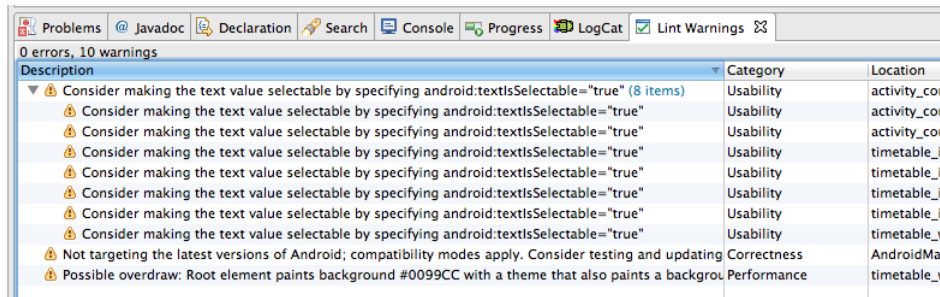
# Lint: Accessibility warnings: missing contentDescription



The screenshot shows the Lint Warnings panel in an IDE. The top toolbar includes icons for Problems, Javadoc, Declaration, Search, Console, Progress, LogCat, and Lint Warnings. The panel displays 1 error and 59 warnings. The following table summarizes the visible warnings:

Description	Category	Location
✖ Corresponding method handler 'public void removeCourse(android.view.View)' not found	Correctness	activity_us
▶ ⚠ Consider making the text value selectable by specifying android:textIsSelectable="true" (11 items)	Usability	activity_co
⚠ Not targeting the latest versions of Android; compatibility modes apply. Consider testing and updating	Correctness	AndroidMa
▶ ⚠ The <activity> com.elbatemitfni.infintimetable.DatabaseHandler is not registered in the manifest (4 items)	Correctness	DatabaseH
⚠ To get local formatting use getDateInstance(), getDateTImeInstance(), or use getTimeInstance()	Correctness	Database.J
▶ ⚠ Found bitmap drawable res/drawable/add_journal_icon.png in densityless folder (13 items)	Usability:Icons	add_journ
▶ ⚠ [I18N] Hardcoded string "Find course", should use @string resource (6 items)	Internationalization	activity_da
⚠ Should use "sp" instead of "dp" for text sizes	Correctness	activity_us
⚠ Use a layout_width of 0dip instead of wrap_content for better performance	Performance	activity_ma
▶ ⚠ Possible overdraw: Root element paints background @drawable/bg with a theme that also paints a back	Performance	activity_da
▼ ⚠ The resource R.drawable.add_journal_icon appears to be unused (10 items)	Performance	add_journ
⚠ The resource R.drawable.blue_bg_without_text appears to be unused	Performance	blue_bg_w
⚠ The resource R.drawable.btn_toggle_off appears to be unused	Performance	btn_toggle
⚠ The resource R.menu.database_handler appears to be unused	Performance	database_h
⚠ The resource R.drawable.ic_action_settings appears to be unused	Performance	ic_action_s
⚠ The resource R.drawable.ic_more_info appears to be unused	Performance	ic_more_in
⚠ The resource R.drawable.icon appears to be unused	Performance	icon.png in
⚠ The resource R.menu.main appears to be unused	Performance	main.xml in
⚠ The resource R.menu.main_table_view appears to be unused	Performance	main_table
⚠ The resource R.drawable.right_arrow appears to be unused	Performance	right_arrow
▼ ⚠ [Accessibility] Missing contentDescription attribute on image (4 items)	Accessibility	activity_da
⚠ [Accessibility] Missing contentDescription attribute on image	Accessibility	activity_ma
⚠ [Accessibility] Missing contentDescription attribute on image	Accessibility	activity_ma
⚠ [Accessibility] Missing contentDescription attribute on image	Accessibility	activity_ma

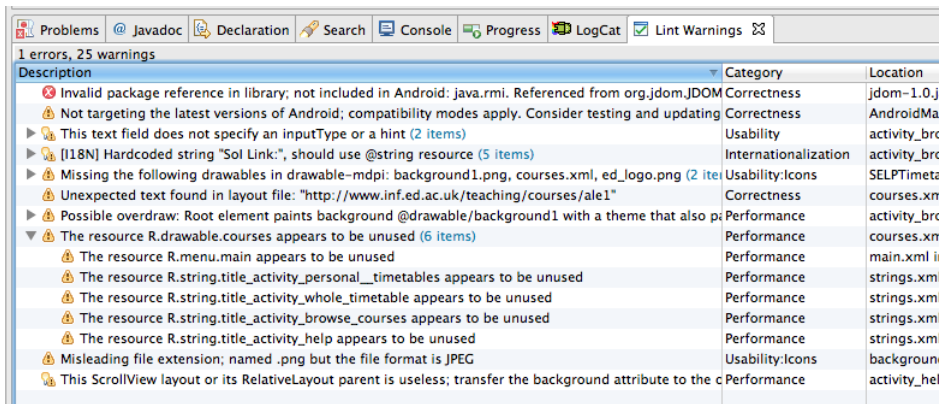
# Lint: "Consider making the text value selectable"



0 errors, 10 warnings

Description	Category	Location
▼ ⚠ Consider making the text value selectable by specifying android:textIsSelectable="true" (8 items)	Usability	activity_co
⚠ Consider making the text value selectable by specifying android:textIsSelectable="true"	Usability	activity_co
⚠ Consider making the text value selectable by specifying android:textIsSelectable="true"	Usability	activity_co
⚠ Consider making the text value selectable by specifying android:textIsSelectable="true"	Usability	timetable_
⚠ Consider making the text value selectable by specifying android:textIsSelectable="true"	Usability	timetable_
⚠ Consider making the text value selectable by specifying android:textIsSelectable="true"	Usability	timetable_
⚠ Consider making the text value selectable by specifying android:textIsSelectable="true"	Usability	timetable_
⚠ Consider making the text value selectable by specifying android:textIsSelectable="true"	Usability	timetable_
⚠ Not targeting the latest versions of Android; compatibility modes apply. Consider testing and updating	Correctness	AndroidMa
⚠ Possible overflow: Root element paints background #0099CC with a theme that also paints a backgrou	Performance	timetable_

# Lint: I18N (Internationalisation)—hardcoded strings



The screenshot shows the Lint Warnings panel in an IDE. The top bar includes tabs for Problems, Javadoc, Declaration, Search, Console, Progress, LogCat, and Lint Warnings. Below the tabs, it indicates '1 errors, 25 warnings'. The main area is a table with three columns: Description, Category, and Location.

Description	Category	Location
Invalid package reference in library; not included in Android: java.rmi. Referenced from org.jdom.JDOM	Correctness	jdom-1.0.j
Not targeting the latest versions of Android; compatibility modes apply. Consider testing and updating	Correctness	AndroidMa
This text field does not specify an inputType or a hint (2 items)	Usability	activity_bro
[I18N] Hardcoded string "Sol Link:", should use @string resource (5 items)	Internationalization	activity_bro
Missing the following drawables in drawable-mdpi: background1.png, courses.xml, ed_logo.png (2 ite	Usability:Icons	SELPTimeta
Unexpected text found in layout file: "http://www.inf.ed.ac.uk/teaching/courses/ale1"	Correctness	courses.xml
Possible overdraw: Root element paints background @drawable/background1 with a theme that also p	Performance	activity_bro
The resource R.drawable.courses appears to be unused (6 items)	Performance	courses.xml
The resource R.menu.main appears to be unused	Performance	main.xml in
The resource R.string.title_activity_personal__timetables appears to be unused	Performance	strings.xml
The resource R.string.title_activity_whole_timetable appears to be unused	Performance	strings.xml
The resource R.string.title_activity_browse_courses appears to be unused	Performance	strings.xml
The resource R.string.title_activity_help appears to be unused	Performance	strings.xml
Misleading file extension; named .png but the file format is JPEG	Usability:Icons	background
This ScrollView layout or its RelativeLayout parent is useless; transfer the background attribute to the c	Performance	activity_hel

# Lint: “Invalid package reference”; some Java packages will not work with Android

The screenshot shows the 'Lint Warnings' panel in an IDE. The toolbar includes icons for Problems, Javadoc, Declaration, Search, Console, Progress, LogCat, and Lint Warnings. The main area displays '1 error, 24 warnings, 0 others'. A table lists the error details:

Description	Resource
Invalid package reference in library; not included in Android: java.rmi. Referenced from org.jdom.JDOMException.	jdom-1.0.jar