

OS PROJECT REPORT

Android logger



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It is our radiant sentiment to place on record our best regards, deepest sense of gratitude to our beloved professor Dr. Ashu Abdul sir for his careful and precise guidance which were extremely valuable for our study both theoretically and practically.

We perceive this opportunity as a big milestone in our career development. We will strive to use gained skills and knowledge in the best possible way, and will continue to work on the improvement, in order to attain desired career objectives. Hope to continue cooperation with all of you in the future

Sincerely,

Group 7.

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OBJECTIVE:

To Build an android logger using any android framework and to collect different types of logs generated by an android device to a text file, periodically add the text file to dropbox using dropbox client sdk.

Github Link :

<https://github.com/Gnaneshdivi/Operating-System-Group-7>

LEARNINGS:

App development : flutter

SDK : Dropbox

Language : Dart

Theory : Android Logs

We have gained an understanding on various topics related to the assigned project (android logger). The project involved a combination of various technical skills like flutter framework which used Dart as the programming language and Dropbox sdk to store files from the device .

THEORY:

Dart:

Dart is a client-optimised language which is used for developing apps to any platform. Its goal is to offer the most productive programming language for multi-platform development, paired with a flexible execution runtime platform for app frameworks. Dart is designed for a technical envelope that is particularly suited to client development,

prioritizing both development and high-quality production experiences across a wide variety of compilation targets. Dart also forms the foundation of Flutter. Dart provides the language and runtimes that power Flutter apps, but Dart also supports many core developer tasks like formatting, analyzing, and testing code.

Flutter:

Flutter is Google's portable UI toolkit for crafting beautiful, natively compiled applications for mobile, web, and desktop from a single codebase. Flutter works with existing code that is used by developers and organizations around the world, it is free and open source.

Logs:

Application logging is an essential practice that a developer can implement in their code to facilitate production support. Logging levels distinguish various log events from each other.

OFF:

OFF level is used to turn off logging. It doesn't log anything.

FATAL:

FATAL means that the application is about to stop a serious problem or corruption from happening.

ERROR:

This log level is used when a severe issue is stopping functions within the application from operating efficiently. Most of the time, the application will

continue to run, but eventually, it will need to be addressed.

WARN:

The WARN log level is used when you have detected an unexpected application problem.

INFO:

INFO messages are like the normal behavior of applications. They state what happened. The information logged using the INFO log is usually informative, and it does not necessarily require you to follow up on it.

DEBUG:

DEBUG logging level is used to fetch information needed to diagnose, troubleshoot, or test an application.

TRACE:

The TRACE log level captures all the details about the behavior of the application.

ALL:

It logs everything and includes custom logging levels as well. It is the combination of all other logging

DROPBOX SDK:

It is used to Integrate apps with the content and collaboration solution. helps easily integrate Dropbox into your app. The Dropbox SDK is a Portable Class Library that works with multiple platforms including Windows, Windows Phone, and Mono.

PROCEDURE:

1. The logs from the android device are collected by an android app which is built on flutter framework.
2. The Logs generated by an android device are being collected using the logcat plugin .
3. The extracted logs are then printed to the terminal for the developer reference .
4. A test file is generated at the path of the application. It uses a path provider plugin by the flutter developer team to access the file location .
5. The logs collected in the terminal is them written to the text file using the method “writeasstring”.
6. The file containing the logs is then pushed to dropbox using the drop box sdk which is configured using the app key , secret key and auth token .
7. The steps 2 to 6 are repeated periodically in the time span of 20s .
8. The stored file in the drop box can be downloaded by the user on any platform and can extract the required data from the file .

RESULTS:

Logs opened after download :

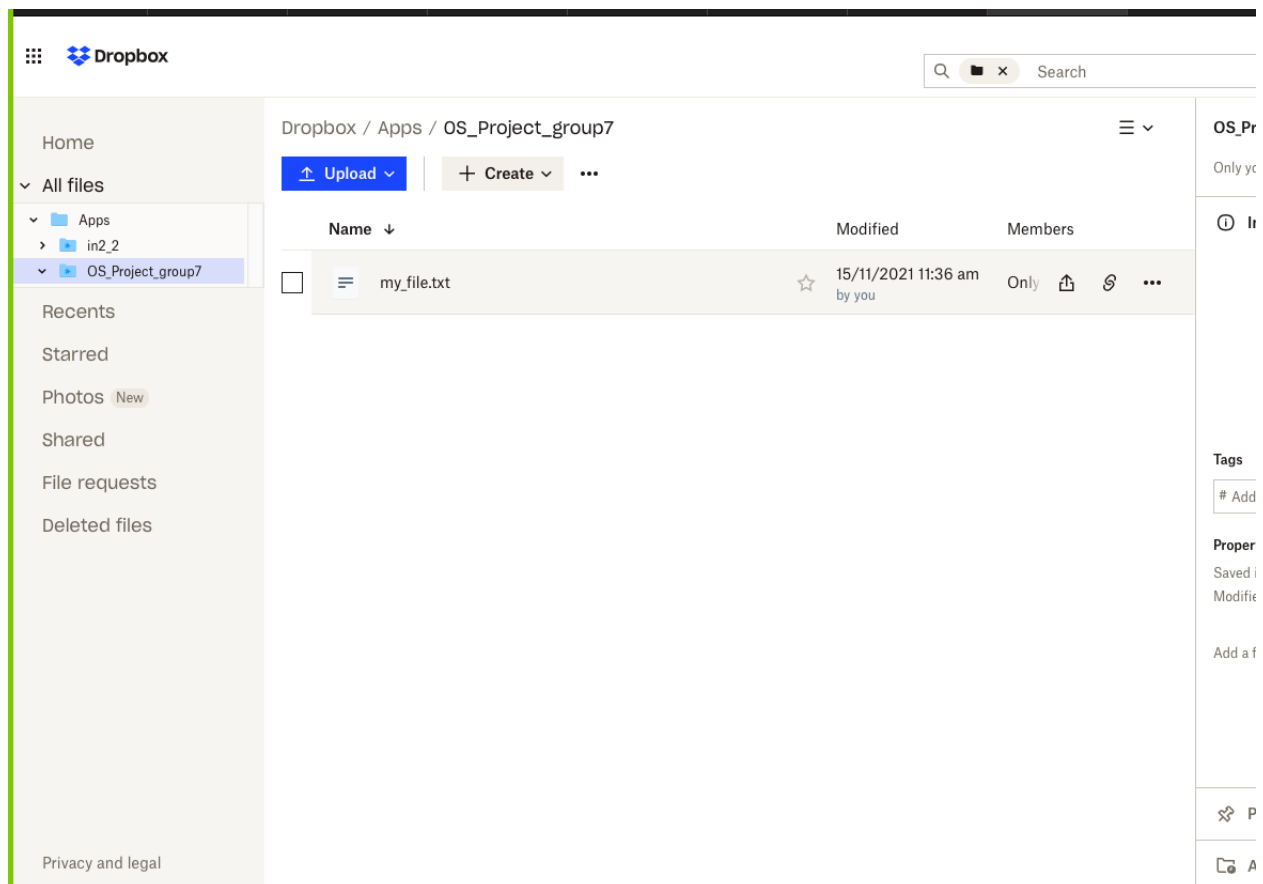
```
beginning of main11-13 17:22:35.996 10837 10837 I chatty : uid=10104(com.example.logger) expire 40 lines11-13 17:22:37.101 10837 10837 I chatty : uid=10104(com.example.logger) expire 1 line11-13
17:22:37.234 10837 10837 I chatty : uid=10104(com.example.logger) expire 5 lines11-13 17:22:38.467 10837 11056 I chatty : uid=10104(com.example.logger) expire 60 lines----- beginning of system11-13
17:22:38.519 10837 10837 D OplusInputMethodUtil: init DEBUG to false, update DEBUG_DME to false11-13 17:22:38.621 10837 10837 D ColorViewRootUtil: initState, isDisplayCompatApp false11-13 17:22:38.621 10837
10837 D ColorViewRootUtil: mScreenHeight 2340, mScreenWidth 108011-13 17:22:38.653 10837 10837 I chatty : uid=10104(com.example.logger) expire 10 lines11-13 17:22:38.668 10837 11068 I chatty :
uid=10104(com.example.logger) expire 1 line11-13 17:22:38.687 10837 10837 V OplusZoomWindowDecorViewHelper: setLastReportedMergedConfiguration mZoomDisplayHeight: 2340
getDecorView.DecorView@7f49bc3(MainActivity)11-13 17:22:38.692 10837 10837 I chatty : uid=10104(com.example.logger) expire 71 lines11-13 17:22:38.705 10837 11055 I chatty : uid=10104(com.example.logger) expire
60 lines11-13 17:22:40.238 10837 11054 I chatty : uid=10104(com.example.logger) expire 8 lines11-13 17:22:40.783 10837 10878 I chatty : uid=10104(com.example.logger) expire 1 line11-13 17:26:52.835 10837 10837 I
chatty : uid=10104(com.example.logger) expire 10 lines11-13 17:30:43.627 10837 10837 I chatty : uid=10104(com.example.logger) expire 10 lines11-13 17:30:57.002 10837 11054 I chatty :
uid=10104(com.example.logger) expire 10 lines11-13 17:31:18.268 10837 10837 I chatty : uid=10104(com.example.logger) expire 12 lines11-13 17:31:36.714 10837 11054 I chatty : uid=10104(com.example.logger) expire
10 lines11-13 17:31:41.331 10837 10837 I chatty : uid=10104(com.example.logger) expire 1 line11-13 17:32:55.624 13075 13075 I chatty : uid=10104(com.example.logger) expire 46 lines11-13 17:32:56.231 13075 13182
I chatty : uid=10104(com.example.logger) expire 1 line11-13 17:32:56.248 13075 13177 I chatty : uid=10104(com.example.logger) expire 5 lines11-13 17:32:57.994 13075 13335 I chatty :
uid=10104(com.example.logger) expire 60 lines11-13 17:32:58.032 13075 13075 D OplusInputMethodUtil: init DEBUG to false, update DEBUG_DME to false11-13 17:32:58.167 13075 13075 D ColorViewRootUtil: initState,
isDisplayCompatApp false11-13 17:32:58.167 13075 13075 D ColorViewRootUtil: mScreenHeight 2340, mScreenWidth 108011-13 17:32:58.229 13075 13075 V OplusZoomWindowDecorViewHelper: setLastReportedMergedConfiguration
mZoomDisplayHeight: 2340 getDecorView.DecorView@7f49bc3(MainActivity)11-13 17:32:58.231 13075 13152 I chatty : uid=10104(com.example.logger) expire 70 lines11-13 17:32:58.232 13075 13346 I chatty :
uid=10104(com.example.logger) expire 1 line11-13 17:32:58.289 13075 13334 I chatty : uid=10104(com.example.logger) expire 60 lines11-13 17:33:00.576 13075 13333 I chatty : uid=10104(com.example.logger) expire 11
lines11-13 17:33:00.585 13075 13149 I chatty : uid=10104(com.example.logger) expire 10 lines11-13 17:33:20.205 13075 13075 I chatty : uid=10104(com.example.logger) expire 10 lines11-13 17:33:40.567 13075 13333 I
chatty : uid=10104(com.example.logger) expire 11 lines11-13 17:34:07.930 13075 13333 I chatty : uid=10104(com.example.logger) expire 18 lines11-13 17:34:29.466 13075 13075 I chatty :
uid=10104(com.example.logger) expire 12 lines11-13 17:34:47.930 13075 13333 I chatty : uid=10104(com.example.logger) expire 24 lines11-13 17:35:07.925 13075 13333 I chatty : uid=10104(com.example.logger) expire
34 lines11-13 17:35:10.880 13075 13075 I chatty : uid=10104(com.example.logger) expire 11 lines11-13 17:35:28.785 13075 13333 I chatty : uid=10104(com.example.logger) expire 32 lines11-13 17:35:30.849 13075
13075 I chatty : uid=10104(com.example.logger) expire 13 lines11-13 17:35:47.928 13075 13333 I chatty : uid=10104(com.example.logger) expire 45 lines11-13 17:35:58.138 13075 13075 I chatty :
uid=10104(com.example.logger) expire 17 lines11-13 17:35:51.756 13075 13182 I chatty : uid=10104(com.example.logger) expire 11 lines11-13 17:36:07.927 13075 13333 I chatty : uid=10104(com.example.logger) expire
57 lines11-13 17:36:09.399 13075 13075 I chatty : uid=10104(com.example.logger) expire 26 lines11-13 17:36:29.245 13075 13333 I chatty : uid=10104(com.example.logger) expire 51 lines11-13 17:36:33.479 13075
13075 I chatty : uid=10104(com.example.logger) expire 14 lines11-13 17:36:47.928 13075 13333 I chatty : uid=10104(com.example.logger) expire 66 lines11-13 17:36:49.731 13075 13075 I chatty :
uid=10104(com.example.logger) expire 24 lines11-13 17:37:07.928 13075 13333 I chatty : uid=10104(com.example.logger) expire 82 lines11-13 17:37:12.724 13075 13075 I chatty : uid=10104(com.example.logger) expire
26 lines11-13 17:37:29.485 13075 13333 I chatty : uid=10104(com.example.logger) expire 96 lines11-13 17:37:33.031 13075 13075 I chatty : uid=10104(com.example.logger) expire 30 lines11-13 17:37:51.904 13075
13333 I chatty : uid=10104(com.example.logger) expire 89 lines11-13 17:37:53.582 13075 13075 I chatty : uid=10104(com.example.logger) expire 33 lines11-13 17:38:11.664 13075 13333 I chatty :
uid=10104(com.example.logger) expire 98 lines11-13 17:38:19.180 13075 13075 I chatty : uid=10104(com.example.logger) expire 33 lines11-13 17:38:32.468 13075 13333 I chatty : uid=10104(com.example.logger) expire
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13075 I chatty : uid=10104(com.example.logger) expire 39 lines11-13 17:39:12.633 13075 13333 I chatty : uid=10104(com.example.logger) expire 26 lines11-13 17:39:14.348 13075 13075 I chatty :
uid=10104(com.example.logger) expire 13 lines11-13 17:39:23.057 13075 13333 I chatty : uid=10104(com.example.logger) expire 97 lines11-13 17:39:25.174 13075 13075 I chatty : uid=10104(com.example.logger) expire
29 lines11-13 17:39:33.147 13075 13333 I chatty : uid=10104(com.example.logger) expire 115 lines11-13 17:39:36.671 13075 13075 I chatty : uid=10104(com.example.logger) expire 41 lines11-13 17:39:58.885 13075
13333 I chatty : uid=10104(com.example.logger) expire 31 lines11-13 17:39:51.850 13075 13075 I chatty : uid=10104(com.example.logger) expire 24 lines11-13 17:40:01.629 13075 13333 I chatty :
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uid=10104(com.example.logger) expire 23 lines11-13 17:43:03.080 13075 13149 I chatty : uid=10104(com.example.logger) expire 6 lines11-13 17:43:18.303 13075 13333 I chatty : uid=10104(com.example.logger) expire
14 lines11-13 17:43:44.064 13075 13333 I chatty : uid=10104(com.example.logger) expire 12 lines11-13 17:43:46.489 13075 13075 I chatty : uid=10104(com.example.logger) expire 11 lines11-13 17:44:06.699 13075
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13075 I chatty : uid=10104(com.example.logger) expire 16 lines11-13 17:46:18.058 13075 13333 I chatty : uid=10104(com.example.logger) expire 30 lines11-13 17:46:25.835 13075 13075 I chatty :
uid=10104(com.example.logger) expire 12 lines11-13 17:46:38.047 13075 13333 I chatty : uid=10104(com.example.logger) expire 39 lines11-13 17:46:45.731 13075 13075 I chatty : uid=10104(com.example.logger) expire
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uid=10104(com.example.logger) expire 32 lines11-13 17:47:48.968 13075 13333 I chatty : uid=10104(com.example.logger) expire 39 lines11-13 17:47:59.106 13075 13333 I chatty : uid=10104(com.example.logger) expire
16 lines11-13 17:48:09.647 13075 13333 I chatty : uid=10104(com.example.logger) expire 12 lines11-13 17:48:49.595 13075 13333 I chatty : uid=10104(com.example.logger) expire 12 lines11-13 17:49:09.595 13075
13333 I chatty : uid=10104(com.example.logger) expire 13 lines11-13 17:49:11.709 13075 13075 I chatty : uid=10104(com.example.logger) expire 16 lines11-13 17:49:27.509 13075 13333 I chatty :
uid=10104(com.example.logger) expire 24 lines11-13 17:49:47.557 13075 13333 I chatty : uid=10104(com.example.logger) expire 30 lines11-13 17:49:51.115 13075 13075 I chatty : uid=10104(com.example.logger) expire
12 lines11-13 17:50:07.558 13075 13333 I chatty : uid=10104(com.example.logger) expire 37 lines11-13 17:50:13.128 13075 13075 I chatty : uid=10104(com.example.logger) expire 15 lines11-13 17:50:28.081 13075
13333 I chatty : uid=10104(com.example.logger) expire 29 lines11-13 17:50:34.652 13075 13075 I chatty : uid=10104(com.example.logger) expire 12 lines11-13 17:50:34.661 13075 13333 I chatty :
uid=10104(com.example.logger) expire 11 lines11-13 17:50:35.260 13075 13075 I chatty : uid=10104(com.example.logger) expire 2 lines11-13 17:50:36.091 13075 13075 E MethodChannel#dropbox: Failed to handle method
call11-13 17:50:36.091 13075 13075 E MethodChannel#dropbox: java.lang.IllegalStateException: URI scheme in your app's manifest is not set up correctly. You should have a com.dropbox.core.android.AuthActivity with
the scheme: db-AlaeVs3NOiCAAAAAAfaesakFjK0Rqg_aRAj86OpnGKy74oyhQUCCFFgDh0nlp11-13 17:50:36.091 13075 13075 E MethodChannel#dropbox: at
com.dropbox.core.android.AuthActivity.checkAppBeforeAuth(AuthActivity.java:353)11-13 17:50:36.091 13075 13075 E MethodChannel#dropbox: at com.dropbox.core.android.Auth.startOAuth2Authentication(Auth.java:161)11-13
17:50:36.091 13075 13075 E MethodChannel#dropbox: at com.dropbox.core.android.Auth.startOAuth2Authentication(Auth.java:147)11-13 17:50:36.091 13075 13075 E MethodChannel#dropbox: at
com.dropbox.core.android.Auth.startOAuth2Authentication(Auth.java:134)11-13 17:50:36.091 13075 13075 E MethodChannel#dropbox: at com.dropbox.core.android.Auth.startOAuth2Authentication(Auth.java:32)11-13
17:50:36.091 13075 13075 E MethodChannel#dropbox: at com.dropbox.core.android.Auth.startOAuth2Authentication(Auth.java:24)11-13 17:50:36.091 13075 13075 E MethodChannel#dropbox: at
com.mix1089.dropbox.DropboxPlugin.onMethodCall(DropboxPlugin.java:161)11-13 17:50:36.091 13075 13075 E MethodChannel#dropbox: at
io.flutter.plugin.common.MethodChannel$IncomingMethodCallHandler.onMessage(MethodChannel.java:233)11-13 17:50:36.091 13075 13075 E MethodChannel#dropbox: at
io.flutter.embedding.engine.dart.DartMessenger.handleMessageFromDart(DartMessenger.java:85)11-13 17:50:36.091 13075 13075 E MethodChannel#dropbox: at
io.flutter.embedding.engine.FlutterJNI.handlePlatformMessage(FlutterJNI.java:818)11-13 17:50:36.091 13075 13075 E MethodChannel#dropbox: at android.os.MessageQueue.next(MessageQueue.java:339)11-13 17:50:36.091 13075 13075 E MethodChannel#dropbox: at
android.os.Looper.loop(Looper.java:199)11-13 17:50:36.091 13075 13075 E MethodChannel#dropbox: at android.app.ActivityThread.main(ActivityThread.java:8276)11-13 17:50:36.091 13075 13075 E
MethodChannel#dropbox: at java.lang.reflect.Method.invoke(Native Method)11-13 17:50:36.091 13075 13075 E MethodChannel#dropbox: at
com.android.internal.os.RuntimeInit$MethodAndArgsCaller.run(RuntimeInit.java:612)11-13 17:50:36.091 13075 13075 E MethodChannel#dropbox: at com.android.internal.os.ZygoteInit.main(ZygoteInit.java:1086)11-13
```


Logs displaying on android device :



```
6:01 — beginning of main11-13 17:22:35.996 10837 10837 I
chatty : uid=10104(com.example.logger) expire 40
lines11-13 17:22:37.101 10837 10837 I chatty :
uid=10104(com.example.logger) expire 1 line11-13
17:22:37.234 10837 10991 I chatty :
uid=10104(com.example.logger) expire 5 lines11-13
17:22:38.467 10837 11056 I chatty :
uid=10104(com.example.logger) expire 60 lines——
beginning of system11-13 17:22:38.519 10837 10837 D
OplusInputMethodUtil: init DEBUG to false, update
DEBUG_IME to false11-13 17:22:38.621 10837 10837 D
ColorViewRootUtil: initSwipState, isDisplayCompatApp
false11-13 17:22:38.621 10837 10837 D ColorViewRootUtil:
mScreenHeight 2340, mScreenWidth 108011-13
17:22:38.653 10837 10837 I chatty :
uid=10104(com.example.logger) expire 10 lines11-13
17:22:38.668 10837 11068 I chatty :
uid=10104(com.example.logger) expire 1 line11-13
17:22:38.687 10837 10837 V
OplusZoomWindowDecorViewHelper:
setLastReportedMergedConfiguration
mZoomDisplayHeight: 2340
getDecorView.DecorView@7f49bc3[MainActivity]11-13
17:22:38.692 10837 10983 I chatty :
uid=10104(com.example.logger) expire 71 lines11-13
17:22:38.705 10837 11055 I chatty :
uid=10104(com.example.logger) expire 60 lines11-13
17:22:40.238 10837 11054 I chatty :
uid=10104(com.example.logger) expire 8 lines11-13
17:22:40.783 10837 10978 I chatty :
uid=10104(com.example.logger) expire 1 line11-13
17:26:52.835 10837 10837 I chatty :
uid=10104(com.example.logger) expire 10 lines11-13
17:30:43.627 10837 10837 I chatty :
uid=10104(com.example.logger) expire 10 lines11-13
17:30:57.002 10837 11054 I chatty :
uid=10104(com.example.logger) expire 10 lines11-13
17:31:18.268 10837 10837 I chatty :
uid=10104(com.example.logger) expire 12 lines11-13
17:31:36.714 10837 11054 I chatty :
uid=10104(com.example.logger) expire 10 lines11-13
17:31:41.331 10837 10837 I chatty :
uid=10104(com.example.logger) expire 1 line11-13
17:32:55.624 13075 13075 I chatty :
uid=10104(com.example.logger) expire 46 lines11-13
17:32:56.231 13075 13182 I chatty :
uid=10104(com.example.logger) expire 1 line11-13
17:32:56.248 13075 13177 I chatty :
uid=10104(com.example.logger) expire 5 lines11-13
17:32:57.994 13075 13335 I chatty :
uid=10104(com.example.logger) expire 60 lines11-13
17:32:58.032 13075 13075 D OplusInputMethodUtil: init
DEBUG to false, update DEBUG_IME to false11-13
17:32:58.167 13075 13075 D ColorViewRootUtil:
```

File uploaded to Dropbox :



CONCLUSION:

An application to log all user activities in the Android device was built using flutter framework and synced the log file to the Dropbox account using the related sdk .

REFERENCES

1. <https://flutter.dev/docs/development/ui/widgets>
2. <https://dart.dev/>

