BCA SEMESTER - II

0302203
HISTORY OF COMPUTING

UNIT – 3
HISTORY OF PROGRAMMING LANGUAGES

- Dr. Disha Shah

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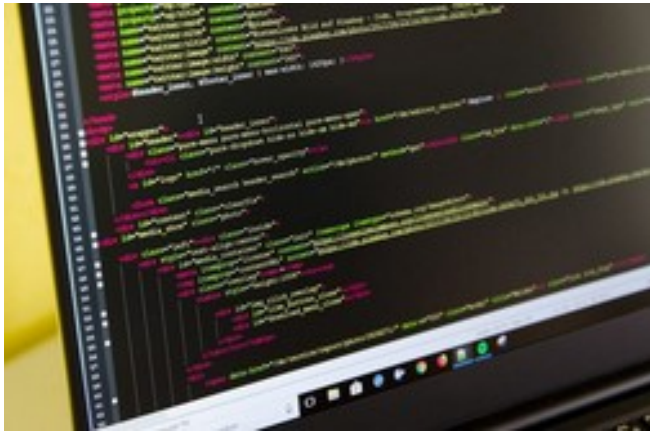
  - LISP (List Processor)
  - COBOL (Common Business Oriented Language)



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Flutter

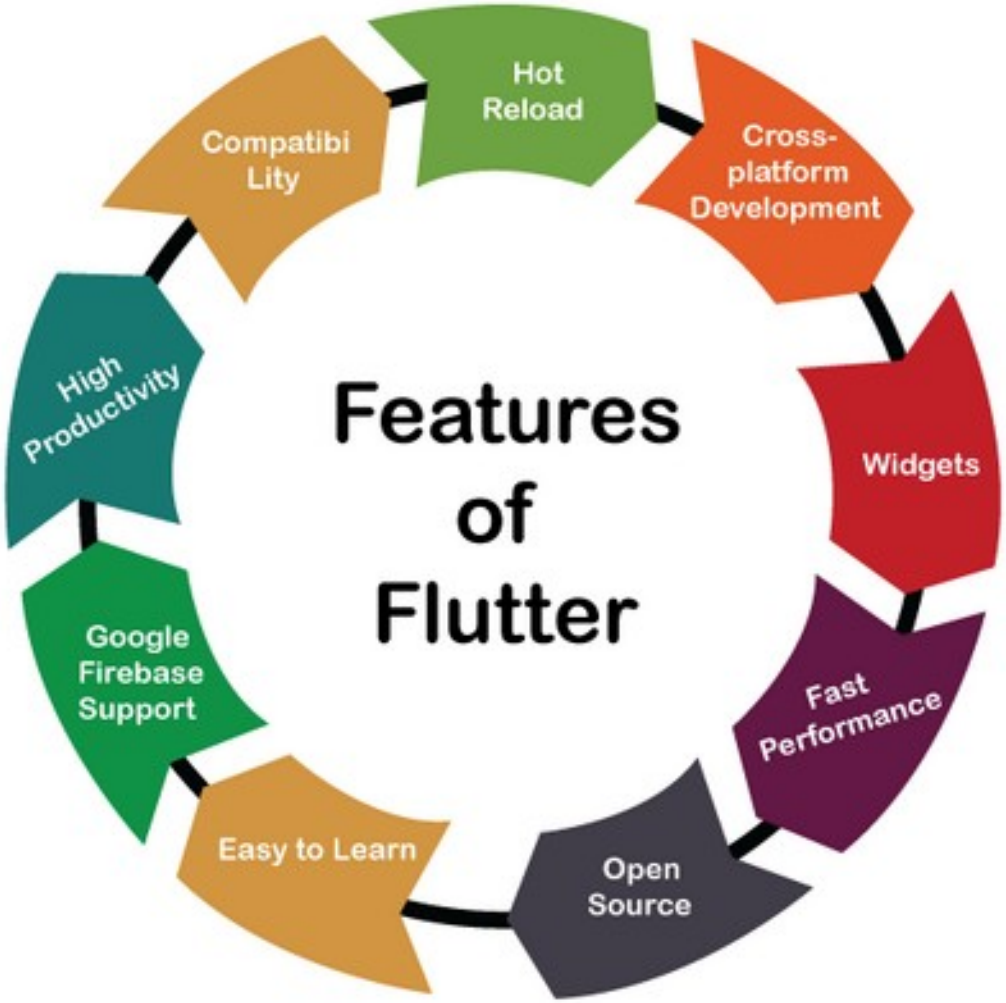
- Flutter is an open source framework to create high quality, high performance mobile applications across mobile operating systems - Android and iOS.
- It provides a simple, powerful, efficient and easy to understand SDK to write mobile application in Google’s own language, Dart.
- On September 8th, 2021, Dart 2.14 and Flutter 2.5 were released by Google.

- In general, developing a mobile application is a complex and challenging task.
- There are many frameworks available to develop a mobile application. Android provides a native framework based on Java language and iOS provides a native framework based on Objective-C / Swift language.
- However, to develop an application supporting both the OSs, we need to code in two different languages using two different frameworks.
- To help overcome this complexity, there exists mobile frameworks supporting both OS.
- These frameworks range from simple HTML based hybrid mobile application framework (which uses HTML for User Interface and JavaScript for application logic) to complex language specific framework (which do the heavy lifting of converting code to native code).
- Irrespective of their simplicity or complexity, these frameworks always have many disadvantages, one of the main drawback being their slow performance.

- Flutter – a simple and high performance framework based on Dart language, provides high performance by rendering the UI directly in the operating system’s canvas rather than through native framework.
- Flutter also offers many ready to use widgets (UI) to create a modern application.
- These widgets are optimized for mobile environment and designing the application using widgets is as simple as designing HTML.
- To be specific, Flutter application is itself a widget.
- Flutter widgets also supports animations and gestures.
- The application logic is based on reactive programming.
- Widget may optionally have a state.
- By changing the state of the widget, Flutter will automatically (reactive programming) compare the widget’s state (old and new) and render the widget with only the necessary changes instead of re-rendering the whole widget.

Features of Flutter

- Modern and reactive framework.
- Uses Dart programming language and it is very easy to learn.
- Fast development.
- Beautiful and fluid user interfaces.
- Huge widget catalog.
- Runs same UI for multiple platforms.
- High performance application.


Features
of
Flutter
Hot
Reload
Cross-
platform
Development
Widgets
Fast
Performance
Open
Source
Easy to Learn
Google
Firebase
Support
High
Productivity
Compatibi
Lity

Advantages of Flutter

- Dart has a large repository of software packages which lets you to extend the capabilities of your application.
- Developers need to write just a single code base for both applications (both Android and iOS platforms). Flutter may to be extended to other platform as well in the future.
- Flutter needs lesser testing. Because of its single code base, it is sufficient if we write automated tests once for both the platforms.
- Flutter’s simplicity makes it a good candidate for fast development. Its customization capability and extendibility makes it even more powerful.
- With Flutter, developers has full control over the widgets and its layout.
- Flutter offers great developer tools, with amazing hot reload.

Disadvantages of Flutter

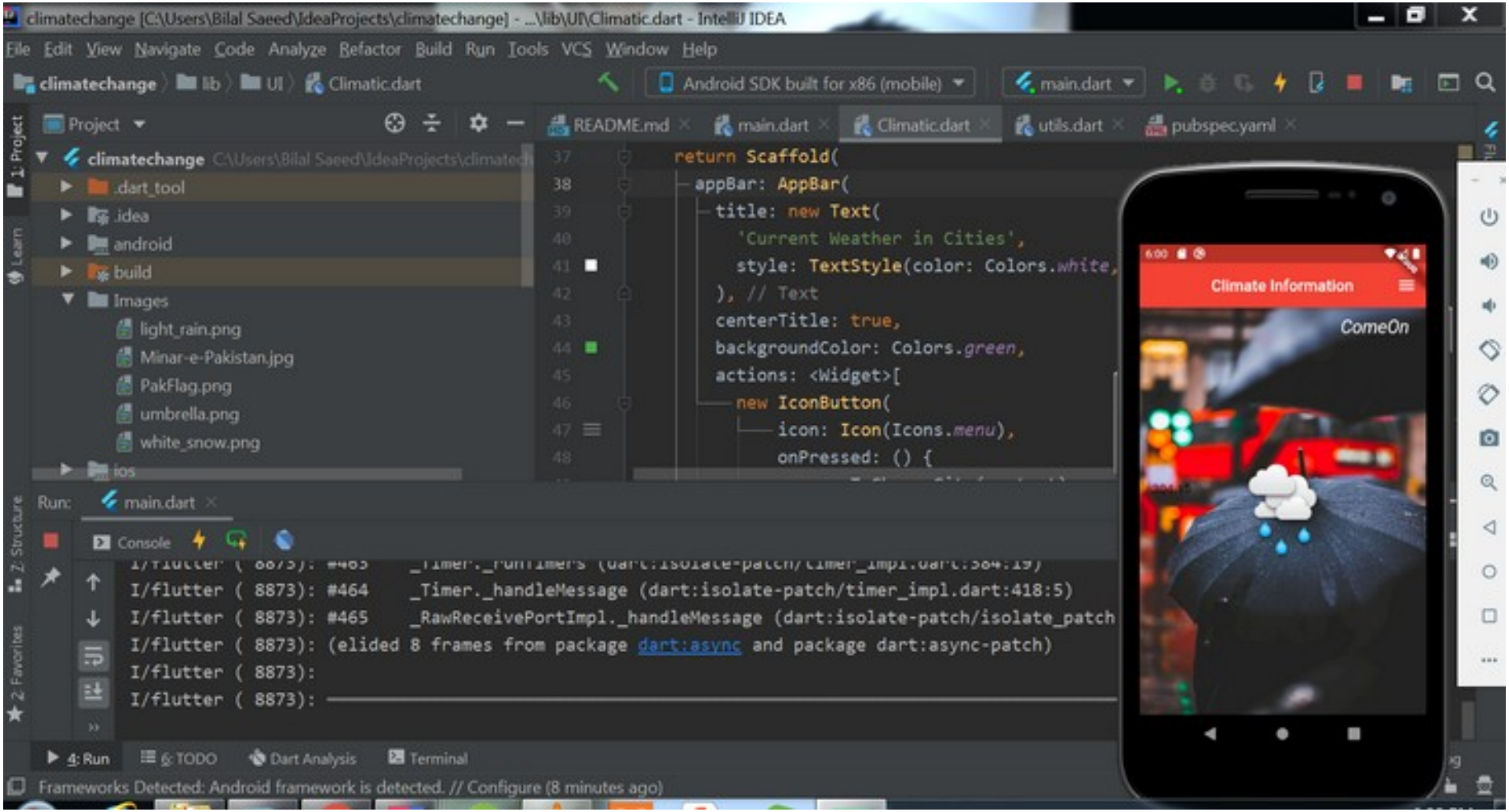
- Since it is coded in Dart language, a developer needs to learn new language (though it is easy to learn).
- Modern framework tries to separate logic and UI as much as possible but, in Flutter, user interface and logic is intermixed. We can overcome this using smart coding and using high level module to separate user interface and logic.
- Flutter is yet another framework to create mobile application. Developers are having a hard time in choosing the right development tools in hugely populated segment.

Framework architecture

- The major components of Flutter include:
-
- Dart platform
- Flutter engine
- Foundation library
- Design-specific widgets
- Flutter Development Tools (DevTools)

IDE Support

- Flutter maintains official support for the following IDEs and editors via plugins:
- IntelliJ IDEA
- Android Studio
- Visual Studio Code
- Emacs


climatechange [C:\Users\Bilal Saeed\IdeaProjects\climatechange] - ...\lib\UI\Climatic.dart - IntelliJ IDEA
File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help
climatechange lib UI Climatic.dart
Android SDK built for x86 (mobile)
main.dart
Project
README.md
main.dart
Climatic.dart
utils.dart
pubspec.yaml
climatechange C:\Users\Bilal Saeed\IdeaProjects\climatech
.dart_tool
.idea
android
build
Images
light_rain.png
Minar-e-Pakistan.jpg
PakFlag.png
umbrella.png
white_snow.png
ios
return Scaffold(
appBar: AppBar(
title: new Text(
'Current Weather in Cities',
style: TextStyle(color: Colors.white,
), // Text
centerTitle: true,
backgroundColor: Colors.green,
actions: <Widget>[
new IconButton(
icon: Icon(Icons.menu),
onPressed: () {
Run: main.dart
Console
I/flutter (8873): #464 _Timer._handleMessage (dart:isolate-patch/timer_impl.dart:418:5)
I/flutter (8873): #465 _RawReceivePortImpl._handleMessage (dart:isolate-patch/isolate_patch
I/flutter (8873): (elided 8 frames from package dart:async and package dart:async-patch)
I/flutter (8873):
I/flutter (8873):
4: Run
6: TODO
Dart Analysis
Terminal
Frameworks Detected: Android framework is detected. // Configure (8 minutes ago)
Climate Information
ComeOn