Flutter Syllabus

For Summer Training Program


```
class MyApp extends StatelessWidget
{
  @override
  Widget build(BuildContext context)
  {
    return MaterialApp
    (
      title: "One Two Three",
      home: Scaffold
      (
        appBar: AppBar
        (
          title: Text("For five six"),
        ), // AppBar
        body: Center
        (
          child: RandomWord(),
        ), // Center
      ), // Scaffold
```

Flutter AI ML

HINDTECH
LEARNING POINT

Skill India
कौशल भारत-कुशल भारत

N·S·D·C
National
Skill Development
Corporation
Transforming the skill landscape

Flutter is an open-source UI software development framework created by Google. It is designed for building natively compiled applications for mobile, web, and desktop from a single codebase. Flutter has gained significant popularity among developers due to its distinctive features and advantages.

FEATURES OF FLUTTER:
- Single Codebase, Multi-Platform: Write code once and run it on iOS, Android, Web, and desktop.
- Expressive UI Framework: Create beautiful and customizable user interfaces with a rich set of widgets.
- Fast Performance: Flutter compiles to native ARM code for near-native performance.
- Hot Reload: See instant code changes in the app during development.
- Rich Ecosystem: Access a wide range of packages and plugins from pub.dev.
- Dart Programming Language: Use Dart, a language with a strong static type system.

BASIC SESSION:

- Welcome To the Course
- What is Flutter?
- Flutter Uses Dart!
- One Code Base Multiple Platform
- Project Creation & Setting Up a Code Editor for Flutter Development
- Flutter Setup - Overview
- Windows Setup
- macOs Setup
- Running a First Flutter App
- Understanding Material Design
- About The Course

DURATION: 2 DAYS

OUTCOME:

1. **Introduction to Flutter and Dart:** Learn the basics of Flutter and Dart.
2. **Cross-Platform Development:** Understand how to use one codebase for multiple platforms.
3. **Setup and Configuration:** Set up Flutter on Windows and macOS, and configure a code editor.
4. **Practical Application:** Run your first Flutter app and understand Material Design principles.

</>

PROJECT SESSION 2: BUILDING FLUTTER APPS:
- You'll create Flutter apps, set up your environment, structure code, and build custom widgets. Gain hands-on experience for feature-rich apps.

FLUTTER & DART BASICS I - GETTING A SOLID FOUNDATION [ROLL DICE APP]

- Module Introduction
- Analysing A New Flutter Project
- From Dart To Machine Code
- How Programming Languages Work
- Starting From Scratch: Understanding Functions
- Importing Features From Packages
- How Flutter Apps Start
- Understanding Widgets
- Using a First Widget & Passing Values to Functions
- Positional & Named Arguments
- Deep Dive: Position & Named Arguments
- Combining Multiple Widgets
- Understanding "const" Values
- Building More Complex Widget Trees
- Understanding Value Types
- Configuring Widgets & Understanding Objects
- Working with "Configuration Objects" (Non-Widget Objects)
- Generics, Lists & Adding Gradient Colours
- How To Configure Widgets & Objects
- Practice: Styling Text
- Onwards to Custom Widgets: Why Do You Need Them?
- Understanding Classes
- Building Custom Widgets
- Working with Constructor Functions
- Splitting Code Across Files
- Practice: Create a Custom Widget
- Introducing Variables
- Variables & Types - Combining Two Key Concepts
- "final" & "const" - Special Kinds Of "Variables"
- Instance Variables (Properties) & Configurable Widgets
- Practice: Reusable Widgets & Constructor Functions
- Displaying Images & Using Multiple Constructor Functions
- Adding Buttons & Using Functions As Values
- Styling Buttons & Working with Padding
- How NOT To Build Interactive Widgets
- Introducing Stateful Widgets
- Generating Random Numbers
- Module Summary

Roll Dice

BUILD ATTENDANCE AND SECURITY SYSTEMS IN FLUTTER [AI & ML APP]

Choosing or Capturing Images in Flutter
- Creating a new Flutter Project and Creating Application GUI
- Adding Libraries and setting configurations for Android & IOS in Flutter
- Choosing Images From Gallery In Flutter
- Capturing Images using Camera in Flutter
- Image Picker Flutter Overview

Face Detection With Images in Flutter
- Section Introduction
- Setting up face detection & recognition flutter project
- What we have done so far in Flutter
- Adding Face Detection Library in Flutter
- Setup for IOS in Flutter
- Setup for Android in Flutter
- Performing Face Detection In Flutter With images
- Drawing rectangles around detected faces in Flutter
- Flutter Face Detector Painter class

Face Recognition With Images In Flutter
- Cropping detected faces in Flutter
- Adding face recognition models & libraries in Flutter
- Passing faces to face recognition model and getting face embedding in Flutter
- Registering faces in Flutter Application
- Face Registration Dialogue in Flutter
- Performing Face Recognition in Flutter
- Drawing recognitions on screens with faces in Flutter
- Validating Recognitions in Flutter

Using Tensorflow Lite Models in Flutter for Face Recognition
- Loading Tensorflow lite models in Flutter
- Passing Input to the tflite models and getting the outputs in Flutter

Storing Registered Faces In Database in Flutter
- Creating database and loading data in Flutter
- Registering new faces in database in Flutter
- Comparing face embeddings and getting recognitions in Flutter
- Using FaceNet model in Flutter

`</>`
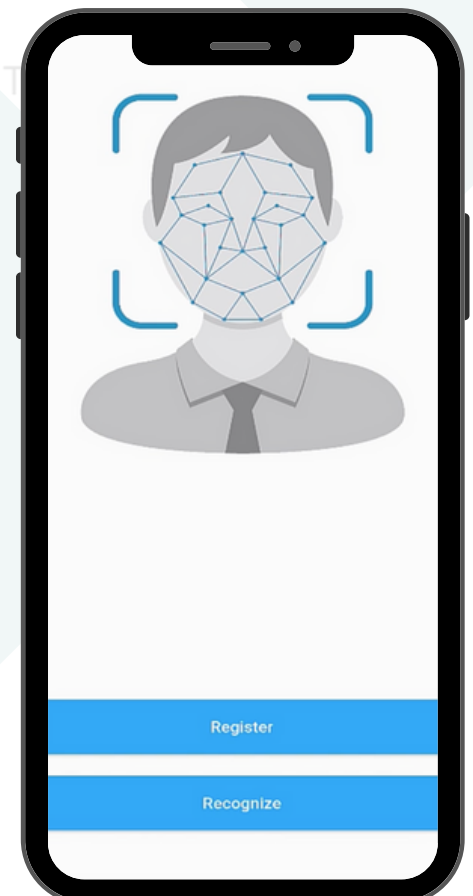
Displaying Live Camera Footage In Flutter
- Adding Libraries and Setup for Android & IOS
- Displaying Camera Footage in Flutter
- Getting frames of Camera Footage in Flutter One By One
- Flutter Camera Package Overview

Realtime Face Detection In Flutter
- Realtime Face Detection In Flutter
- Setting up the flutter project for realtime face recognition application
- What we have done so far in Flutter
- Getting frames of live camera footage in Flutter
- Switching camera directions in Flutter
- Performing face detection in Flutter with live camera footage
- Drawing rectangles around detected faces in realtime in Flutter
- Flutter Face Detector Painter

## Realtime Face Recognition In Flutter
- Cropping detected faces from frames of live camera footage in Flutter
- Loading face recognition models in Flutter
- Registering faces in Realtime Face Recognition Flutter application
- Performing face recognition in Flutter with live camera footage
- Validating recognition of tflite models in Futter
- Realtime face recognition flutter application overview

Requirements
- A desire to learn and apply AI and Machine Learning in mobile app development
- No prior experience with TensorFlow Lite or face recognition models is needed — everything is explained from scratch

Technologies & Tools Covered:
- Flutter (Cross-platform mobile framework)
- TensorFlow Lite (For running ML models on-device)
- MobileFaceNet & FaceNet Models (Pre-trained models for recognition)
- ML Kit Face Detection (Google's fast and reliable API)
- Camera Plugin & Image Picker (Capture & load images easily)
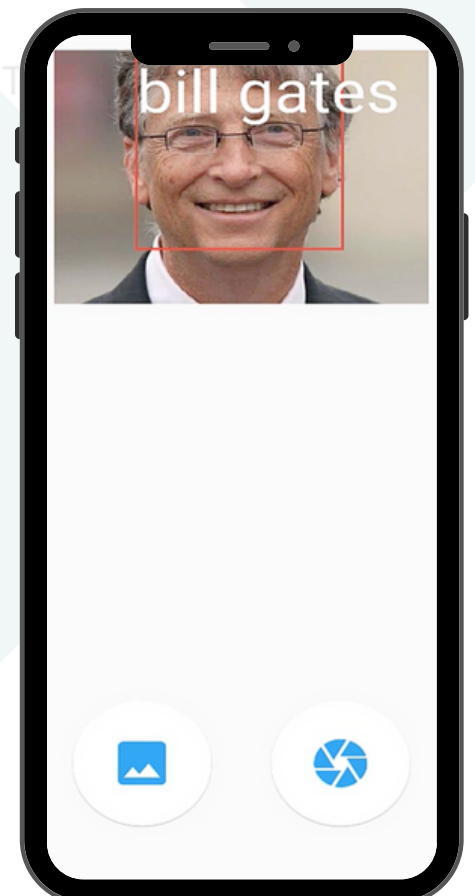
FLUTTER SUMMER TRAINING SYLLABUS PROGRESS TRACKER

◯ **BASIC SESSION**

PROJECTS

◯ ROLL DICE APP

◯ Face Detection ML App

NOTES

HINDTECH
IT SOLUTIONS

Training	Duration	Amount
Flutter Summer Training Program	**45 to 50 Days**	**₹6,000**

www.hindtechitsolutions.com

www.hindtechlearningpoint.com

hr@hindtechitsolutions.com

hindtechlearningpointlko@gmail.com

+91 7905320279

+91 6307738600

Scan Me:

Building No 10/703, Ground Floor, near Arvindo Park Road, Sector 10, Indira Nagar, Lucknow, Uttar Pradesh 226016

Branch 1

PARMAR PLAZA, 1st Floor, Bakshi Ka Talab, Bargadi Magath, Uttar Pradesh 226201

Branch 2

Scan this QR code for details

HINDTECH
LEARNING POINT

Skill India
कौशल भारत - कुशल भारत

N·S·D·C
National Skill Development Corporation
Transforming the skill landscape