

# The Ultimate Mini Projects Guide for developers

Learn to choose the right projects and get started right away.

**Mini projects are an important starter kit for developers who want to pursue a career in tech.**

,

Interviewers are particularly interested in your mini projects. The computer science mini projects you work on sheds light on your career interests and speaks for your enthusiasm to learn tech concepts at a deeper level.

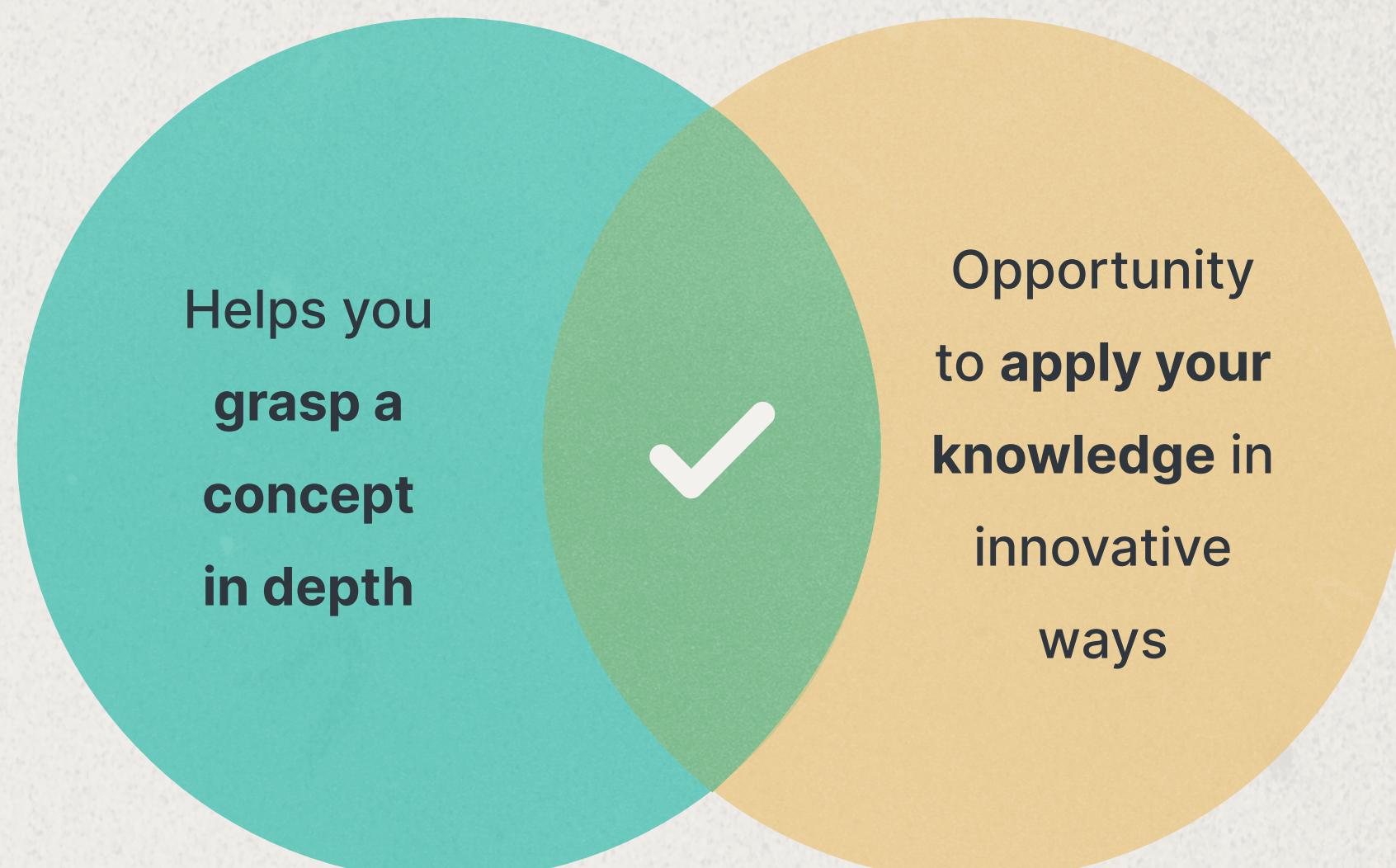
Moreover, when you apply your theoretical knowledge in a hands-on way, you get to explore a breadth of concepts related to your topic.

The practical experience gained from tackling technical challenges in your mini project helps you walk away with longer retention of applied skills.

## CHOOSING THE RIGHT PROJECTS

When it comes to selecting a mini project, it is not paramount to select an innovative idea. What you learn out of it is important to showcase your skillset.

More than going after the number of projects, interviewers usually ask questions hoping you would have chosen mini projects that you care about. Having multiple projects in your resume and not being able to give in-depth answers about them throws you in a bad light.



Recommended to have  
**3-5 mini projects** in  
your resume.

#### Checklist:

- Select mini projects that add value to your career goals.
- Make sure they are in line with your programming interests.
- Build or add a feature that solves a real problem.

## Questions to ask yourself when going for an innovative idea

What problem is my project solving?

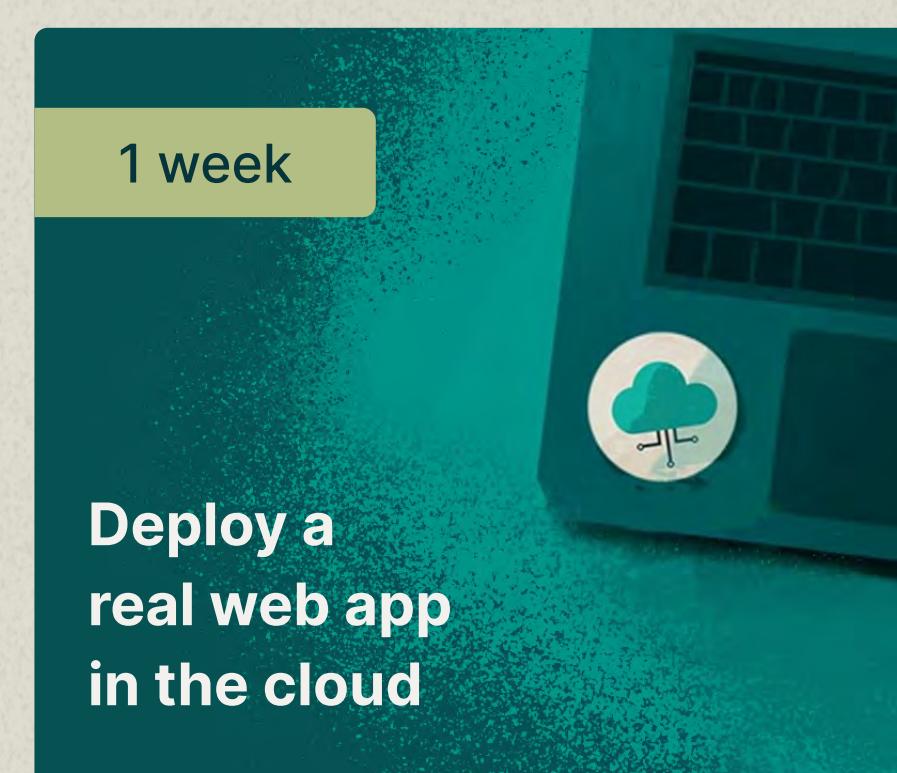
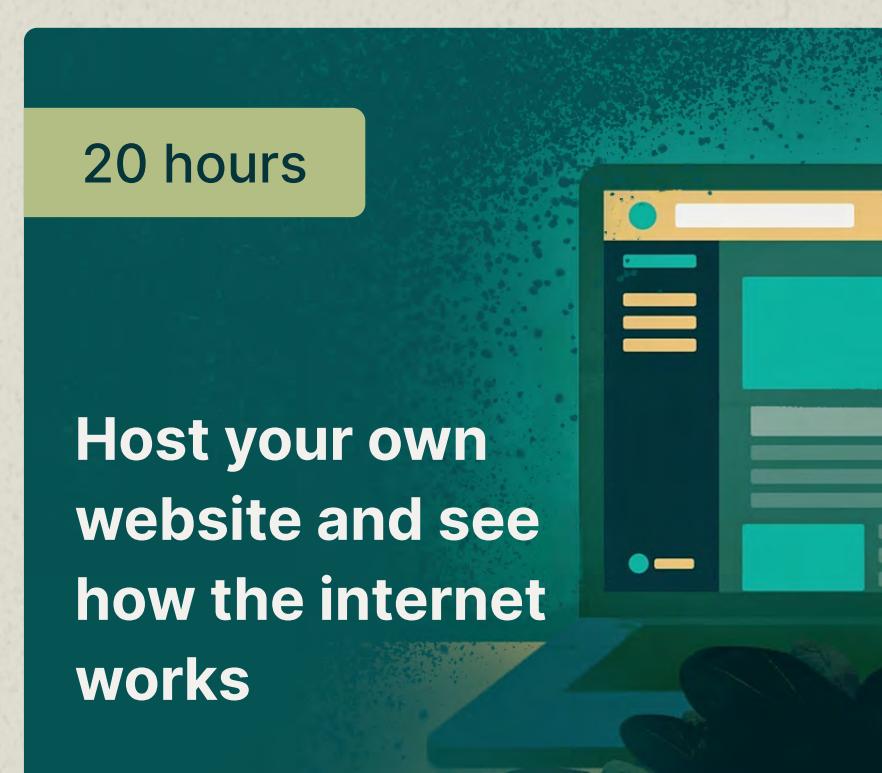
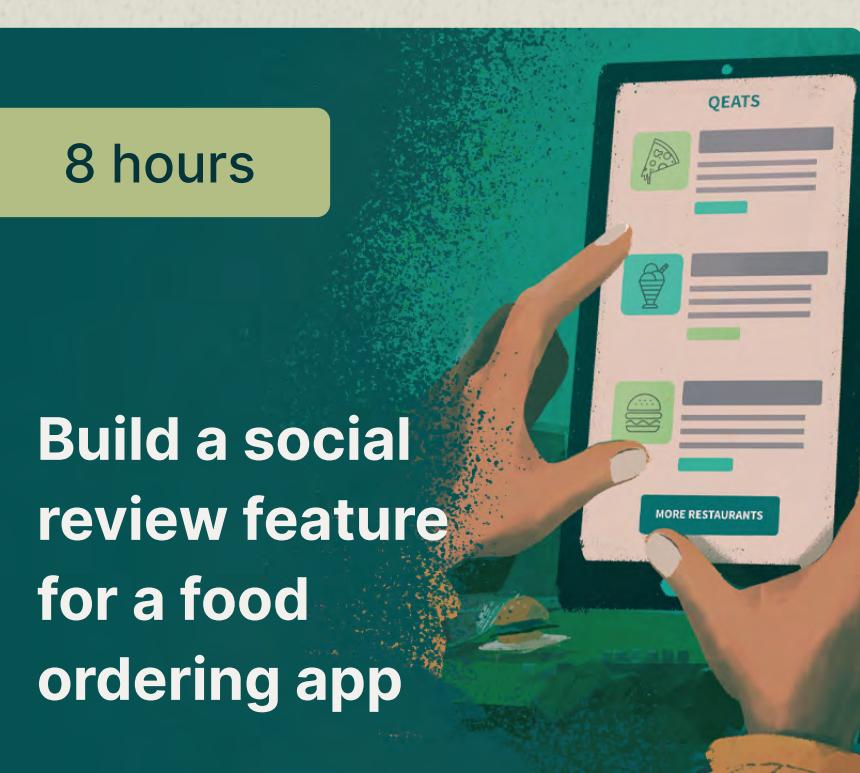
Who is it solving for?

Why does this problem need to be solved?

Are the **skills** and technologies relevant today/next 5-10 years?

## GET STARTED WITH FREE PROJECTS

Free real world projects with new-age web developer skills



Rest API, Python, cURL, Postman, JSON Parsing

Client-Server Architecture, HTTP, DNS, Load Balancing

Linux, Git, HTTP, REST, AWS, Docker basics



Crio.Do

# MORE INNOVATIVE PROJECT IDEAS

## Online white board

Author: Nabhan Abdulla

Online tutoring and schooling from home are becoming very common nowadays. Moreover, because of the COVID pandemic, brainstorming and discussing ideas over video calls have picked up in popularity as well.

In such cases, whiteboards play an important part in making these tasks simple. With a whiteboard, you can easily explain and share ideas. Having a digital whiteboard solves the problem of purchasing and installing a physical one.

### What to do

- Implement basic drawing features like pen, shapes, colors, and eraser options.
- Implement option to redo/undo actions.
- Implement feature to export the drawing board (as pdf/image).
- [Miscellaneous] Implement feature to collaboratively work on the same whiteboard using an invite.
- [Miscellaneous] Create an app using electron.js.
- Deploy to netlify.

### Concepts

Data Structures and Algorithms, Frontend

### Skills

Data Structures (Stack, Queue, Bucket), Jspdf, Jquery, HTML5 Canvas

### Tech

HTML, CSS and JavaScript

### Duration

20-30 hours

### References

- [Web Whiteboard](#)
- [Doodle with strangers on InterWeb!](#)
- [Create a web-based drawing application using Canvas](#)



Crio.Do

# Bulk Thumbnail creator

Thumbnail images are often used to represent a larger image or a video. It helps developers to display more content to users without affecting the website load time. These are also used by video players to give users a snapshot of part of the video where the user wants to seek to.

## What to do

- Implement feature to create thumbnails for all images in a folder as per:
  - a) Specified height and width (crop if required).
  - b) Specified height and width (don't crop, add black background to fill).
- Implement feature to create thumbnails from a video as per:
  - a) Specified height and width (crop if required).
  - b) Specific interval (in seconds) between each subsequent thumbnail.
- Implement multi-threading to improve the performance of the application.
- Perform thumbnail generation in the background to interact with the application during processing.
- Handle different tasks like re-sizing, renaming, etc using different threads.

## Concepts

Image Processing,  
Multithreading

## Skills

JavaCV, Java  
Threads/Runnable

## Tech

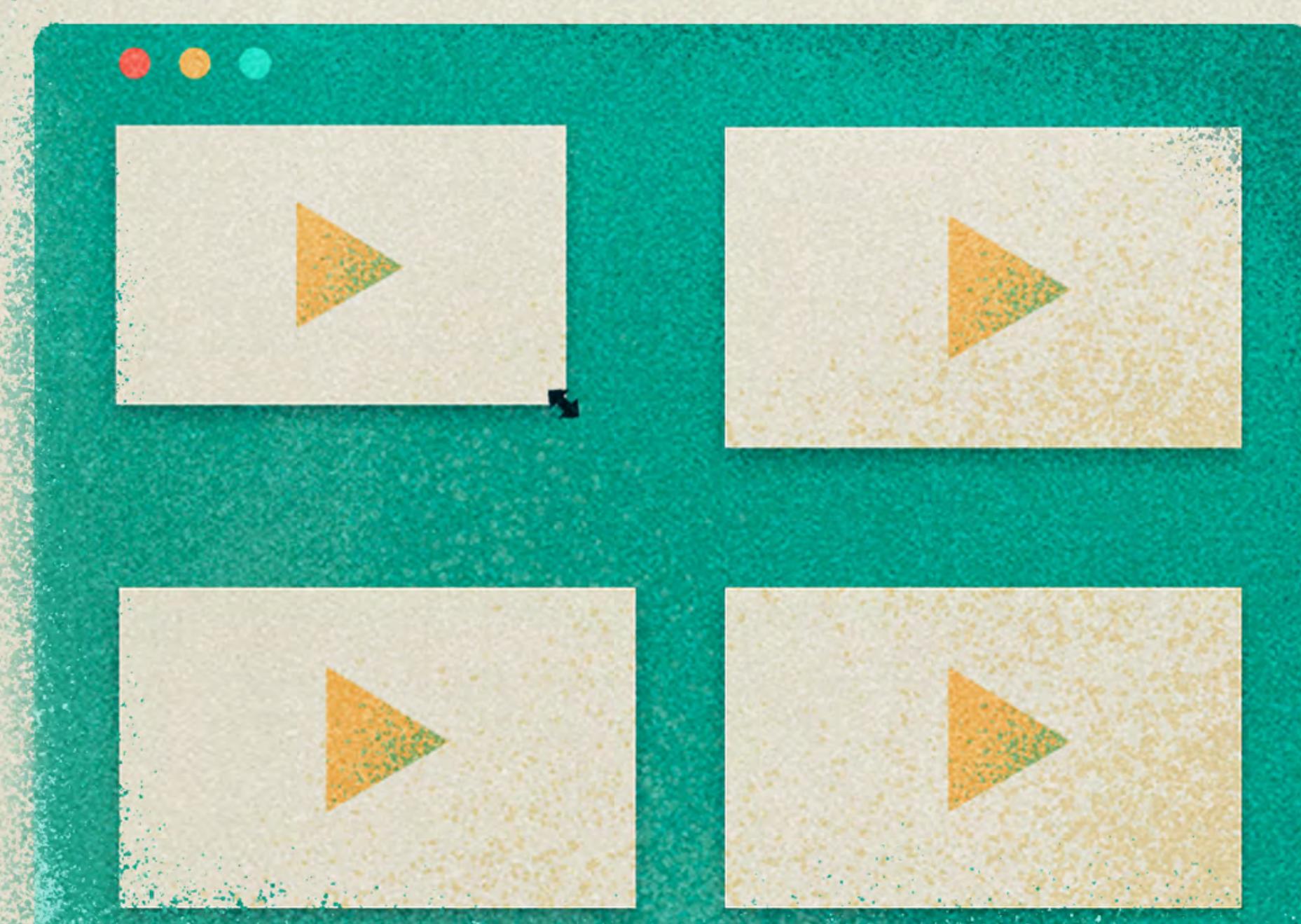
SpringBoot, Gradle

## Duration

40-50 hours

## References

- [What is a thumbnail?](#)
- [Video thumbnail generator](#)
- [gnuThumbnailer - Download application and try it out.](#)
- [Thumbnailator - a thumbnail generation library for Java](#)
- [Programming GUI - Java Image Processing Java](#)



# Emotion Based Music Player

Author: Gourav Sardana

Google Search has set the bar high to immediately receive useful information for things we search on the internet. Today, users automatically expect to get accurate and instant recommendations on almost anything.

Wouldn't it be cool if there was a music player that could recommend songs based on the mood of a user?

## What to do

Create a basic music player such that users can:

- Search for particular songs they like.
- Listen to songs from a wide range of music.
- Filter songs by genre, artist, etc.
- Implement functionality to extract emotion from an image a user uploads or clicks a live photo - Refer.
- Implement functionality to recommend songs based on emotion. Users should be able to receive recommendations based on:
  - a) An emoji selected, photo uploaded, or a live photo clicked.
  - b) Their selected genre/artist.

## Concepts

Facial Emotion  
Recognition, Convolution  
Neural Networks,  
Recommendation Systems

## Skills

Tkinter, OpenCV

## Tech

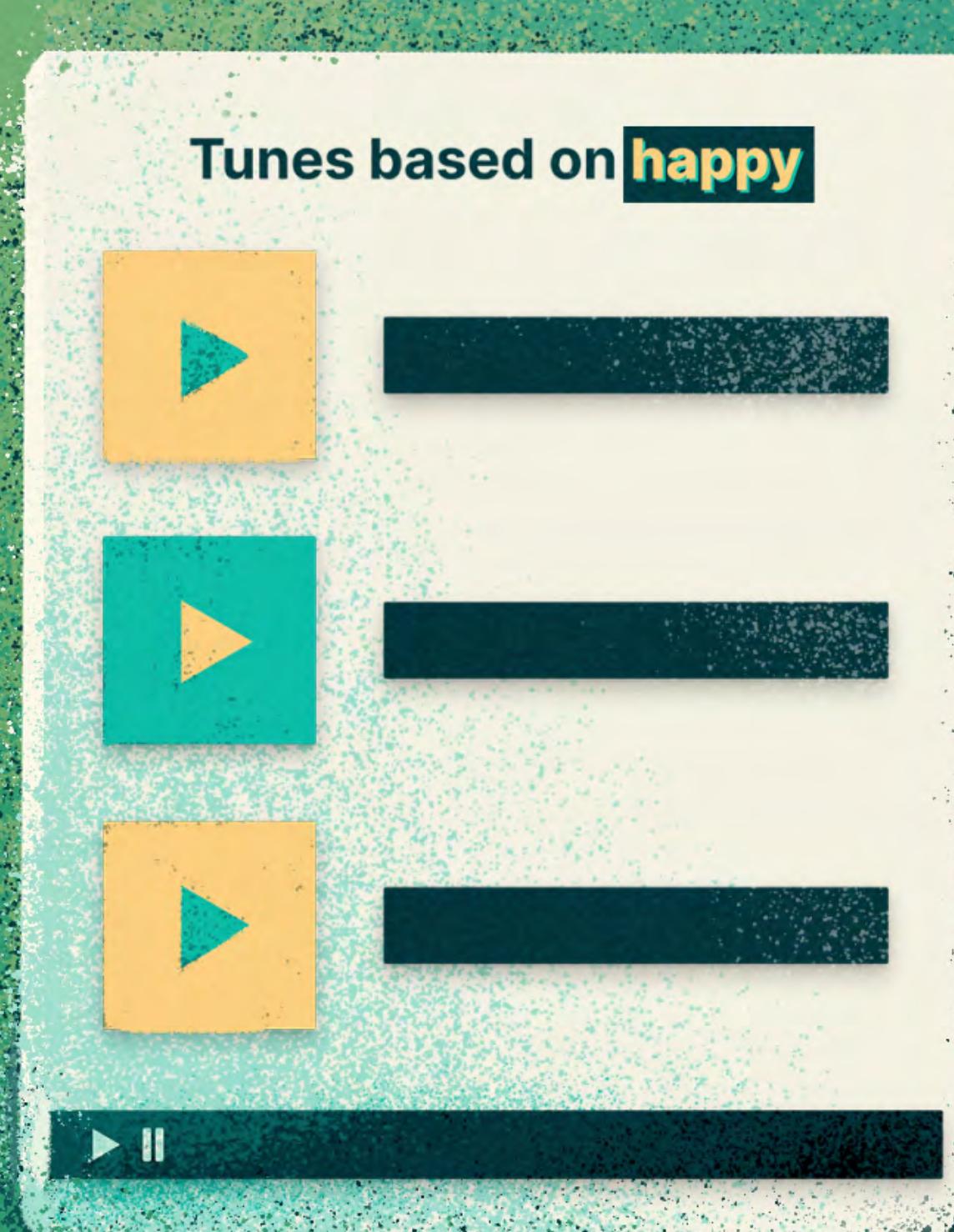
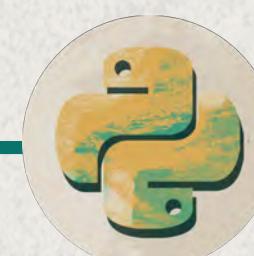
Anaconda(Python), Keras

## Duration

70-80 hours

## References

- [Free and Open Music](#)
- [APIs](#)
- [Music emotion recognition](#)
- [The ABC of building a content-based music recommender system](#)
- [What are some algorithms used in a music recommendation system?](#)
- [Using Google Cloud Platform \(GCP\) to build a music recommendation system](#)



Crio.Do

# Deal Finder

Despite the unpredictable nature of the stock market, every investor wants to know how their stocks are performing and which stocks to buy/sell at the right time. They are constantly looking for reliable forecasting platforms to make the best data-driven decisions about their trades.

## What to do

- Fetch stock data using an API.
- Add stock portfolios (use a database).
- Predict the price of selected stocks and calculate the risk of trading these stocks.
- Visualize information like user's current stock returns, prospective stocks forecast, competitor analysis, etc.

## Concepts

Android Development,  
Data Visualization

## Skills

API Handling  
(RestTemplate, Jackson),  
Time Series Analysis,  
Google Chart/JFree Chart,  
Tiingo API

## Tech

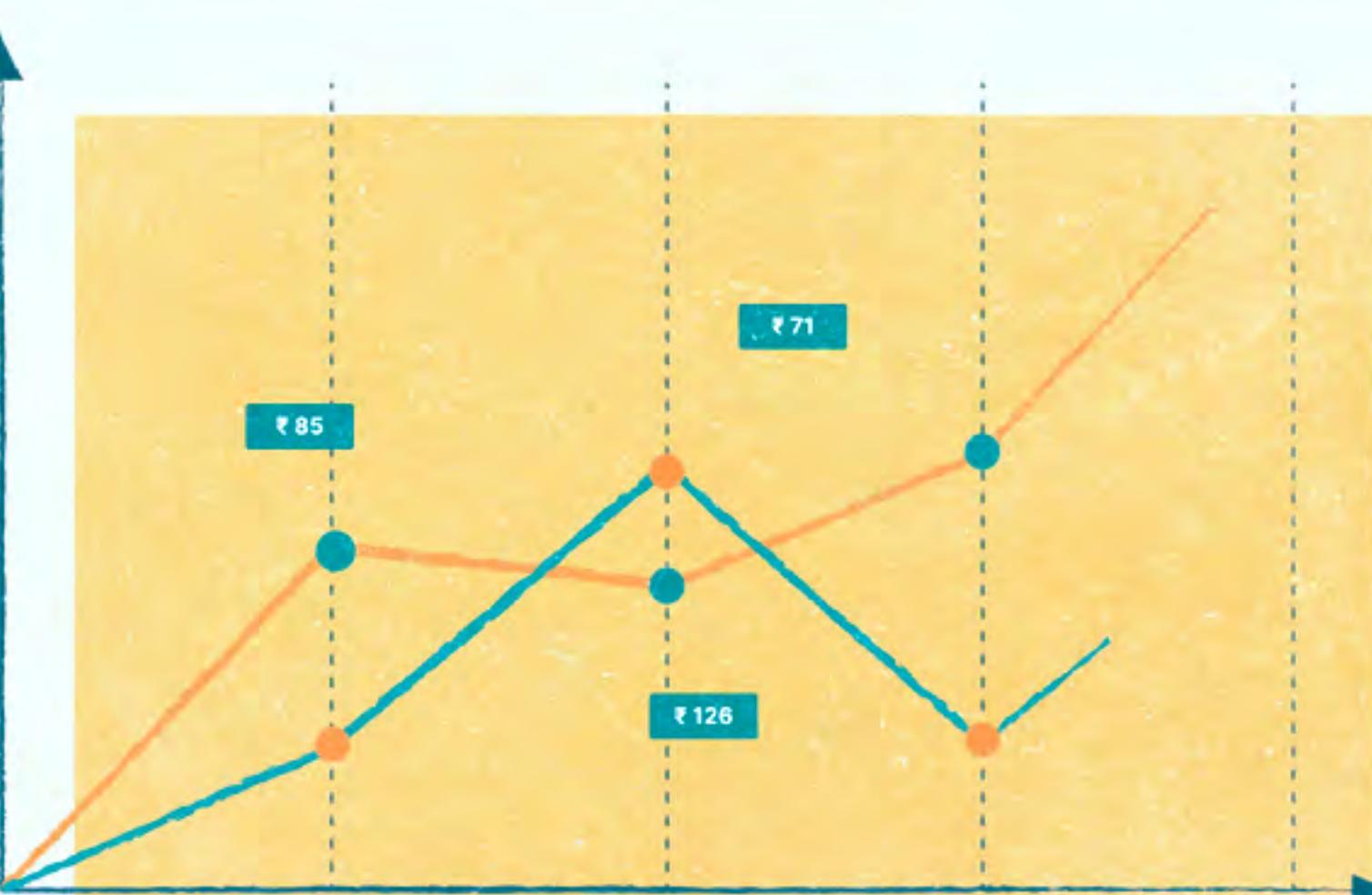
Android Studio, Android  
SDK, REST API

## Duration

40-60 hours

## References

- [Tiingo API - End-of-Day Prices and Meta Information](#)
- [Stock market forecasting using Time Series analysis](#)
- [Stock Market Predictor using Supervised learning](#)
- [Python for Android applications](#)
- [Google Charts, JFree Chart](#)



Crio.Do

## Portfolio Website

Portfolio websites are a great way to showcase your skills and talent to a potential employer. Having a portfolio website gives a clear message about how serious you are about getting hired. Moreover, building a website sharpens your web development skills and adds relevant skills to your skillset.

### What to do

- Use any frontend framework like Angular/React to develop the portfolio website
- Find a template online or try your hand at designing a website.
- Include links and add demos of your projects.
- Deploy your website on netlify or Github.
- [Miscellaneous] Buy a domain and host it on cloud.
- [Miscellaneous] Build your own CMS (like Wordpress).

### Concepts

Web Development

### Skills

Netlify/Github Pages,  
UI/UX (Figma)

### Tech

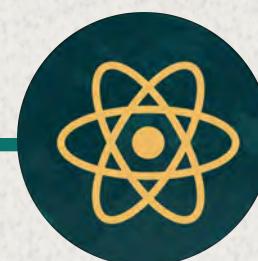
Angular/React

### Duration

20-30 hours

### References

- Developer Portfolio Examples
  - [Mathew Williams](#)
  - [Zac Clemans](#)
- Deploying
  - [netlify](#)
  - [Github Pages](#)



**For more such ideas and to know how to include these projects in your resume**

Read this