



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

LAM Project Proposals 2025

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Introduction

Options for the project:

- Proposal **presented** today
 - The following proposal must be considered just as a base.
 - All the main functionalities listed must be implemented (minimal requirements to have the project accepted).
 - We strongly encourage to expand/customize the proposal based on your creativity.
- Propose your own project by writing an e-mail to **lorenzo.gigli@unibo.it**



Introduction

Six deadlines over the year (the ones below are tentative, always rely on **Virtuale**):

- - Exam June 23th (project deadline June 15th)
- - Exam July 21nd (project deadline July 13th)
- - Exam September 12th (project deadline September 7th)
- - Exam November 17th (project deadline November 9th)
- - Exam January 19th (project deadline January 11th)
- - Exam February 13th (project deadline February 8th)

If you choose to follow today's specification you cannot present your project after February.



Rules

- Projects described in the following must be developed by **a single student or a group of two students** (for 2 students there is an integration to the main track).
- Project implementation must be original and 100% student work (no code share or reuse).
- Submit the project onto Virtuale (<https://virtuale.unibo.it>) including the code and a technical report
- The exam consist of a project discussion and an oral examination
 - The discussion is per group
 - The oral is per student
 - **ALWAYS SUBSCRIBE THROUGH ALMAESAMI**



Rules

Read and follow the instructions about projects submission policies (deadlines, validity, etc) on the course website:

<https://virtuale.unibo.it/course/view.php?id=47976>

- There is a PDF with the exact instructions to follow.

THE PDF CONTAINS THE RULES, SLIDES ARE INDICATIVE

- The same track for Android, iOS and Hybrid projects
 - We know iOS had less lectures -> because you can **always** do it in Android.
 - iOS is considered an alternative based on your **own** choice.
 - You can also use a hybrid framework, BUT you cannot develop a Web Application.



The Exam

- Deliver the **CODE** and a pdf **REPORT**.
 - There are constraints on how to name them
 - Each group just uploads once
- In the project discussion you will present your project using **SLIDES**
 - Bring them with you, do not upload them
 - 10-15 slides is the best bet, consider taking 10 minutes for your explanation



The Exam

The **Report** should be named SURNAME1_SURNAME2.pdf and contain:

- The name, surname, email, and matriculation number of each component of the group.
- Overview of the application with screenshots.
- Implementation details on how you chose to implement the functionalities.

A good report is probably between 10 and 15 pages. Less than 5 pages are probably bad, and more than 15 is probably too many. The quality of the report WILL be part of the evaluation. A good report also contains about 70% of implementation details and choices and only the remaining 30% of screenshots, overview...



The Exam

If the code is too bulky for Virtuale even after removing the build generated files:

- Upload the code to Drive/OneDrive
- Make a HASH
- Upload the zip with the report, the hash and the download link on virtuale



The Exam

- On the exam day there will also be an oral examination concerning a "theory part". In case of a group, the project discussion will take place with the whole group and the theory part will take place individually.
- The oral examination is about all we have seen during the course lectures.



Alternatives

Propose your own

- propose your own project by writing an e-mail to lorenzo.gigli@unibo.it
- It **needs** to include a **list of requirements** that you aim to satisfy
- DO NOT BRING PROJECTS FROM THE LAST YEARS
- Ideally it must be something that cannot be done with Webapps
- A backend will not be evaluated



Seminar

Do a seminar **INSTEAD** of implementing a project

An an alternative to the project, a student may choose to propose a seminar. In this case, the student must propose a topic, obviously coherent with the course, about a technology that however is not in the contents of the course. Examples are:

- React Native
- Ionic - React
- Xamarin
- Kotlin Multiplatform



Seminar

Do a seminar **INSTEAD** of implementing a project

These are only examples and we welcome proposals. The seminar must be in the form of a small lecture (30-40 minutes) held by the student in front of the class, possibly during the last lectures in May.

The Lecture must include slides and a little bit of live coding. If the student chooses this path, then only the oral examination will be required.

Please send all your seminar proposals to me!



Project: Travel Companion

Mobile application that assists users in planning, tracking, and documenting their travel experiences.

- Create trip plans
- Log journeys using GPS
- Attach photos and notes to journeys
- Visualize travel history through maps and statistics



Project: Travel Companion

Record the Activities:

- UI for creating trip plans (e.g., destination, travel dates)
- Manually start/stop journey logging during travel
- Attach photos and notes to specific moments and locations
- Store all trip-related data in a local database



Project: Travel Companion

The application must support **at least** three mandatory trip types:

- Local trip (e.g., within the city)
- Day trip (e.g., a short out-of-town excursion)
- Multi-day trip (e.g., a vacation)

Users must be able to view their past trips and logged journeys in a list or on a map, with at least one filtering option (e.g., by date, destination, or trip type).



Project: Travel Companion

Display charts:

The application must include a section displaying **at least two different** visualizations of the user's travel data:

- **Map view:** Displays recorded travel routes or generates a heat map of visited locations over a selected period (e.g., the past month)
- **Bar Chart or Timeline:** Shows the number of trips taken or the total distance traveled per month



Project: Travel Companion

Perform Background Jobs:

- At least **one periodic notification**:
 - Alerts about nearby points of interest (e.g., landmarks or attractions) based on the user's current GPS location
 - Reminders to log a journey if the user has not recorded a trip recently
- One additional **background** operation:
 - Automatic Journey Tracking
 - Geofencing



Project: Travel Companion for 2 students

Personalized Progress Prediction Module:

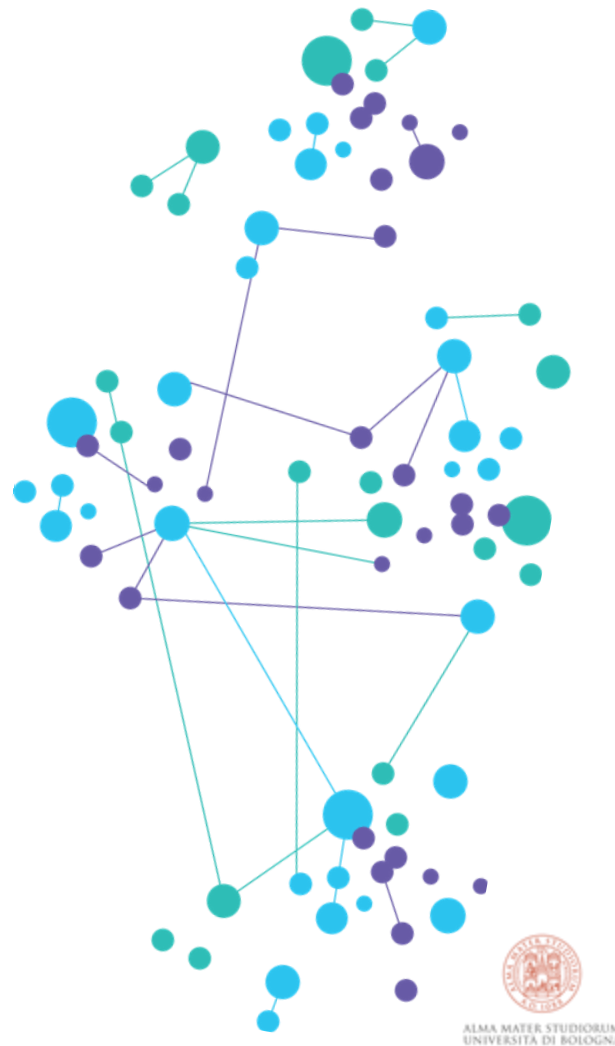
- **Data Analysis:** Identifies patterns in past trips (e.g., frequency, distances, visited locations)
- **Forecast Generation:** Predicts key metrics (e.g., projected trips, estimated distances) with interactive visualizations
- **Personalized Goal Recommendations:** Suggests new trips or increased travel frequency based on trends
- **Local Execution:** All processing occurs on-device, ensuring privacy and independence



Project: Trust App

Mobile application for trusted data collection.

- Interact with blockchain smart contracts to request trusted IoT data
- Store data locally and visualize it via an intuitive UI
- Integrate MetaMask for wallet management
- Execute transactions on Ethereum Sepolia
- **Details available upon request**





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