

Laboratory of Advanced Programming
2024/2025

Ndannamo

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Planning a Trip with Friends?

When organizing a trip with friends, **information** is often **scattered** across **multiple platforms**:

- WhatsApp for chatting
- Google Sheets for expenses
- Google Docs or Notes for itinerary
- Weather and map apps for logistics



This leads to **confusion**, duplicated effort, and **missing information**.

Trip planning should be exciting—not exhausting.



NDANNAMO

WHERE ARE WE GOING

Idea

A collaborative web application that brings all trip-related features together:

- Plan your itinerary day by day
- Chat with your friends in real time
- Split expenses and track who owes what
- Add bookings, photos, and maps
- Check the weather

No more switching between platforms. Just one app, all you need.

User Stories

- 68 User stories, organized in 11 sets
- To each user story we assigned:
 - Priority: high / low
 - Story points: 1 / 2 / 3

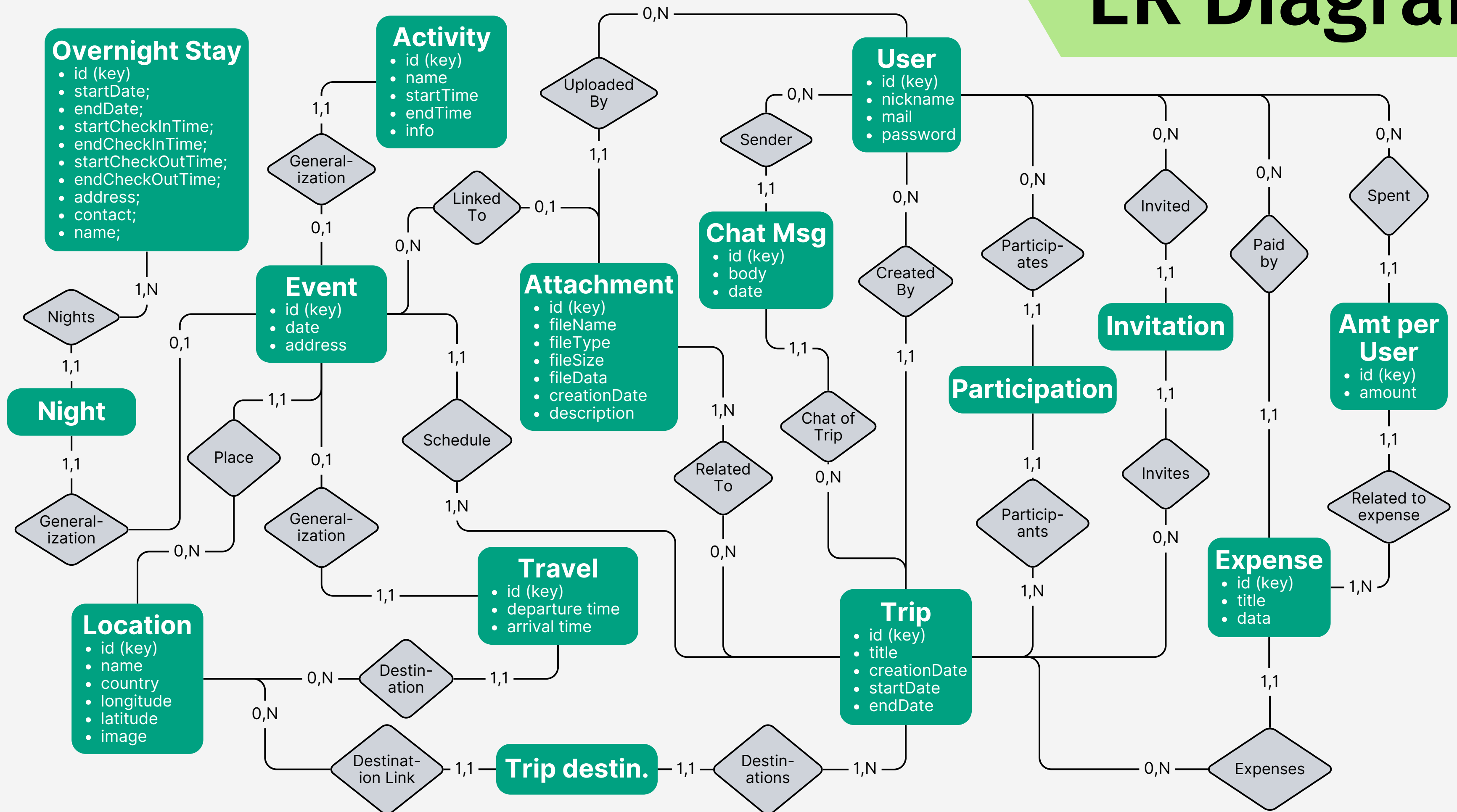
Stories:

Title	Description
Login	As a user, I want to login, to access the application's features.
Seeing the trips	As a user, I want to see all my trips.
Trip creation	As a user, I want to create a trip, to start planning it.
...	...

Sets:

- User Authentication [3 stories]
- User Profile Management [3 stories]
- Trip Management [10 stories]
- Trip Invitations [4 stories]
- Trip Schedule & Activities [11 stories]
- ...

ER Diagram



Function Points

Function Name	Description	Type	DET	RET / FTR	Complexity	FP
Activity	activity in the schedule	ILF	10	1	Low	5
Travel	travel of the trip	ILF	8	1	Low	5
Overnight Stay	Overnight Stay , tells info about where you will spend the night	ILF	11	1	Low	5
User	User of the system	ILF	7	1	Low	5
Attachment	Attachment that can be a photo or a file related to the trip or to specific events	ILF	10	1	Low	5
Chat	Keep track of Messages from the chat of the trip	ILF	5	1	Low	5
City	Contains info on the cities	ILF	6	1	Low	5
Trip	It is the Trip you organize using the software	ILF	12	1	Low	5
...

Unadjusted FP

127

COCOMO II

COCOMO II - Constructive Cost Model

Software Size

Sizing Method

Function Points

Unadjusted Function Points

127

Language

Java

Software Scale Drivers

Precedentedness

Nominal

Architecture / Risk Resolution

Low

Process Maturity

Low

Development Flexibility

High

Team Cohesion

High

Software Cost Drivers

Product

Required Software Reliability

Very Low

Data Base Size

Nominal

Product Complexity

Low

Developed for Reusability

Low

Documentation Match to Lifecycle Needs

Low

Personnel

Analyst Capability

Low

Programmer Capability

Low

Personnel Continuity

Very High

Application Experience

Very Low

Platform Experience

Very Low

Language and Toolset Experience

Nominal

Platform

Time Constraint

Nominal

Storage Constraint

Nominal

Platform Volatility

Low

Project

Use of Software Tools

Nominal

Multisite Development

Nominal

Required Development Schedule

Nominal

Effort = 21.4 Person-months

Schedule = 9.8 Months

Cost = \$53515

Total Equivalent Size = 6731 SLOC

Effort Adjustment Factor (EAF) = 0.88

Acquisition Phase Distribution

Phase	Effort (Person-months)	Schedule (Months)	Average Staff	Cost (Dollars)
Inception	1.3	1.2	1.1	\$3211
Elaboration	5.1	3.7	1.4	\$12844
Construction	16.3	6.1	2.7	\$40671
Transition	2.6	1.2	2.1	\$6422

Software Effort Distribution for RUP/MBASE (Person-Months)

Phase/Activity	Inception	Elaboration	Construction	Transition
Management	0.2	0.6	1.6	0.4
Environment/CM	0.1	0.4	0.8	0.1
Requirements	0.5	0.9	1.3	0.1
Design	0.2	1.8	2.6	0.1
Implementation	0.1	0.7	5.5	0.5
Assessment	0.1	0.5	3.9	0.6
Deployment	0.0	0.2	0.5	0.8

21.4/4 = ~ 5 months

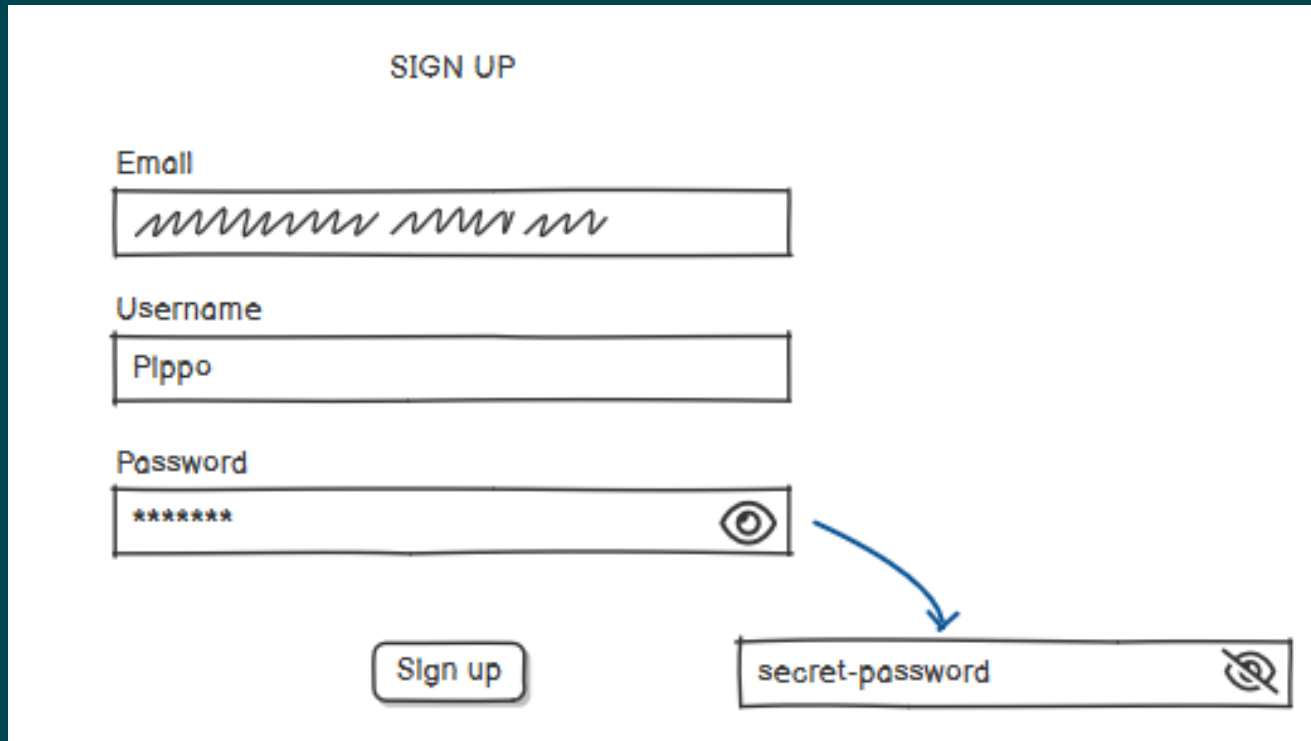
LO-FI Mockups

SIGN UP

Email

Username

Password



Lo-fi mockups, realized using
Balsamiq

Trip Schedule

Trip to Greece

Where:

When:

Participants:

Schedule

10/08

11/08

Lunch

11/08 Activity: Museum visit

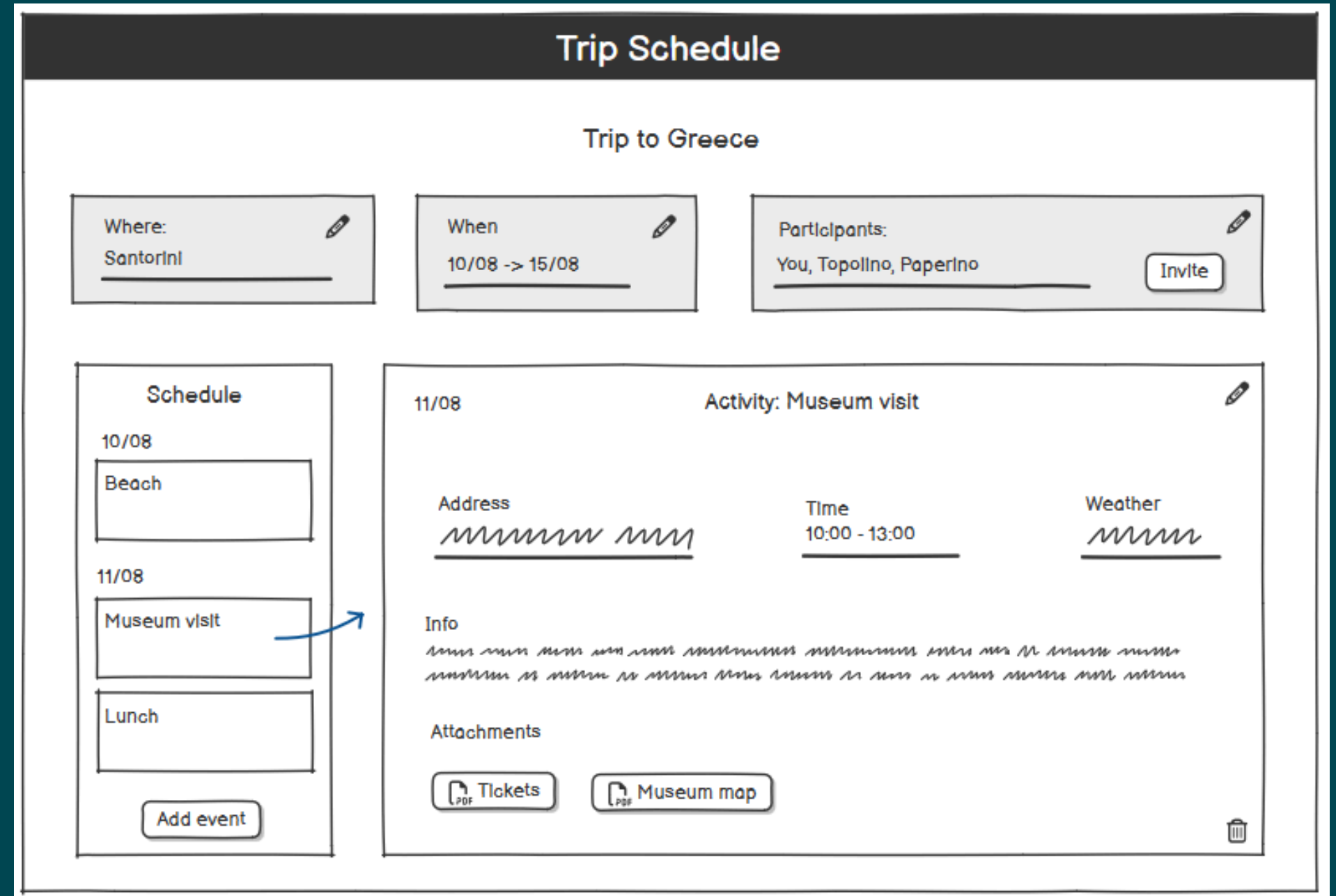
Address:

Time:

Weather:

Info

Attachments



Main microservices



Authentication

Registration and login

Profile managing

See and modify personal data, accept or refuse invitations sent by other users

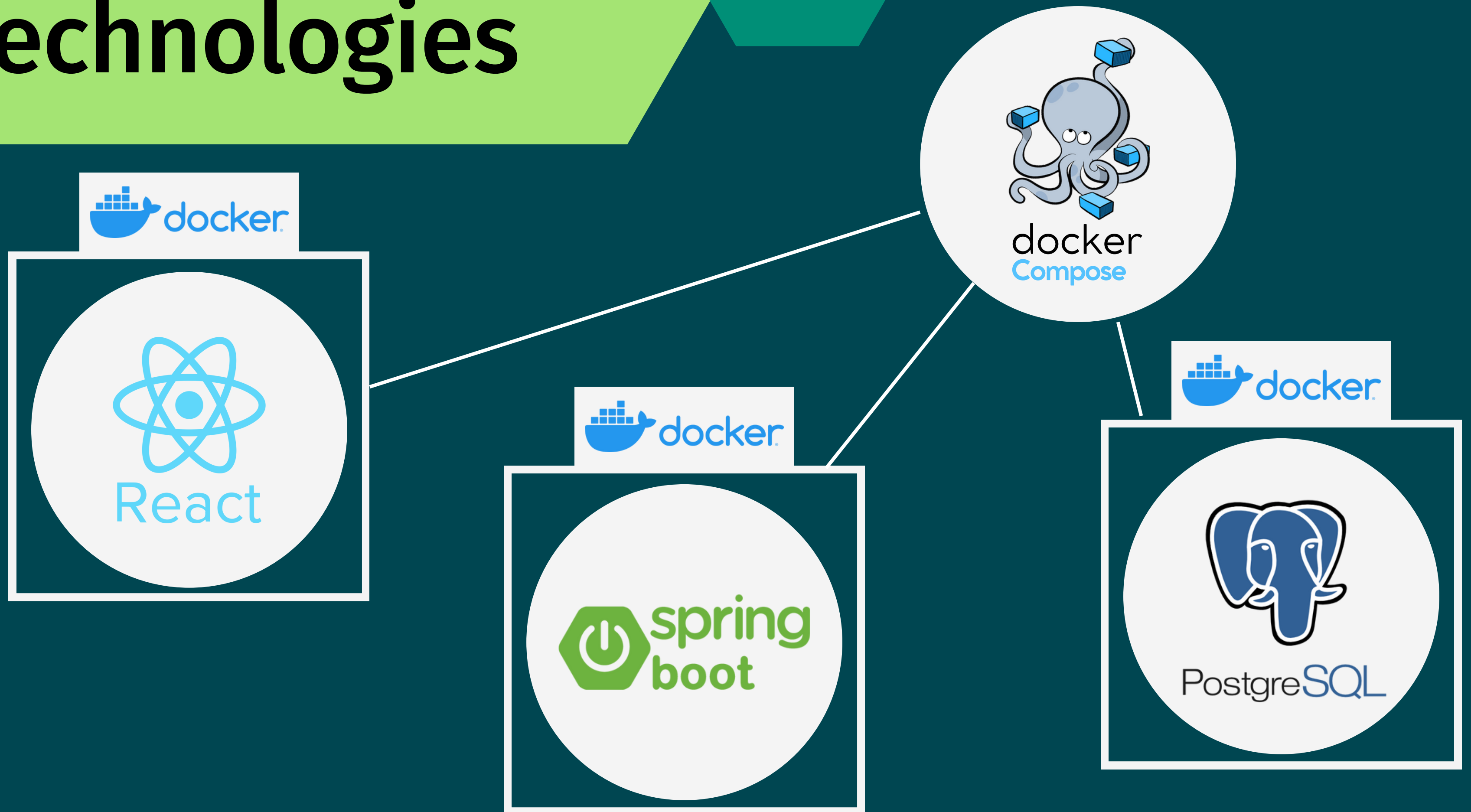
Trips managing

- Create and manage a trip: delete it, edit it, invite people to it, etc
- Manage the schedule of a trip: create and manage events (activities or travels) and multi-nights accommodations
- Manage the expenses of a trip
- See, upload and remove photos of a trip

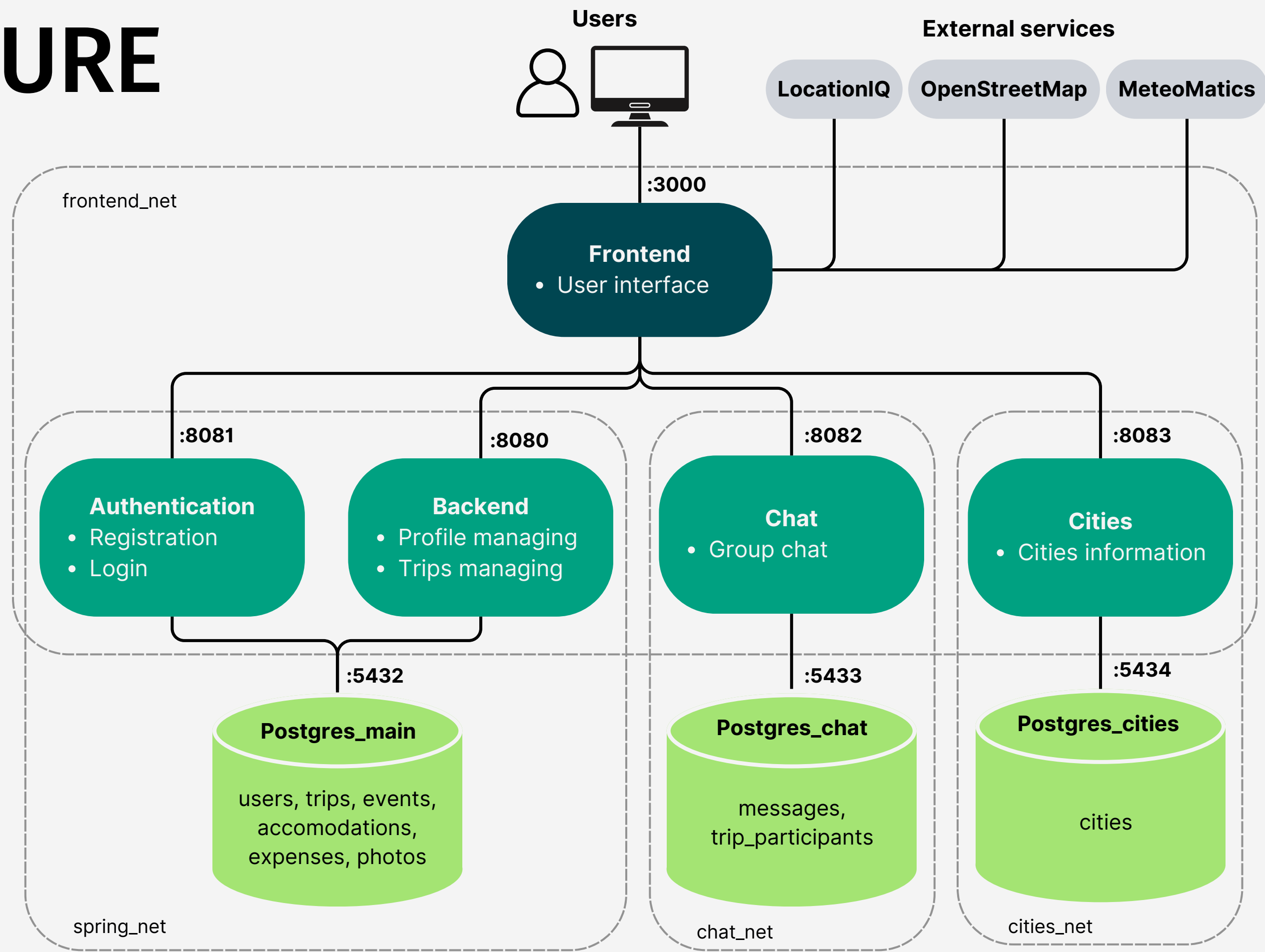
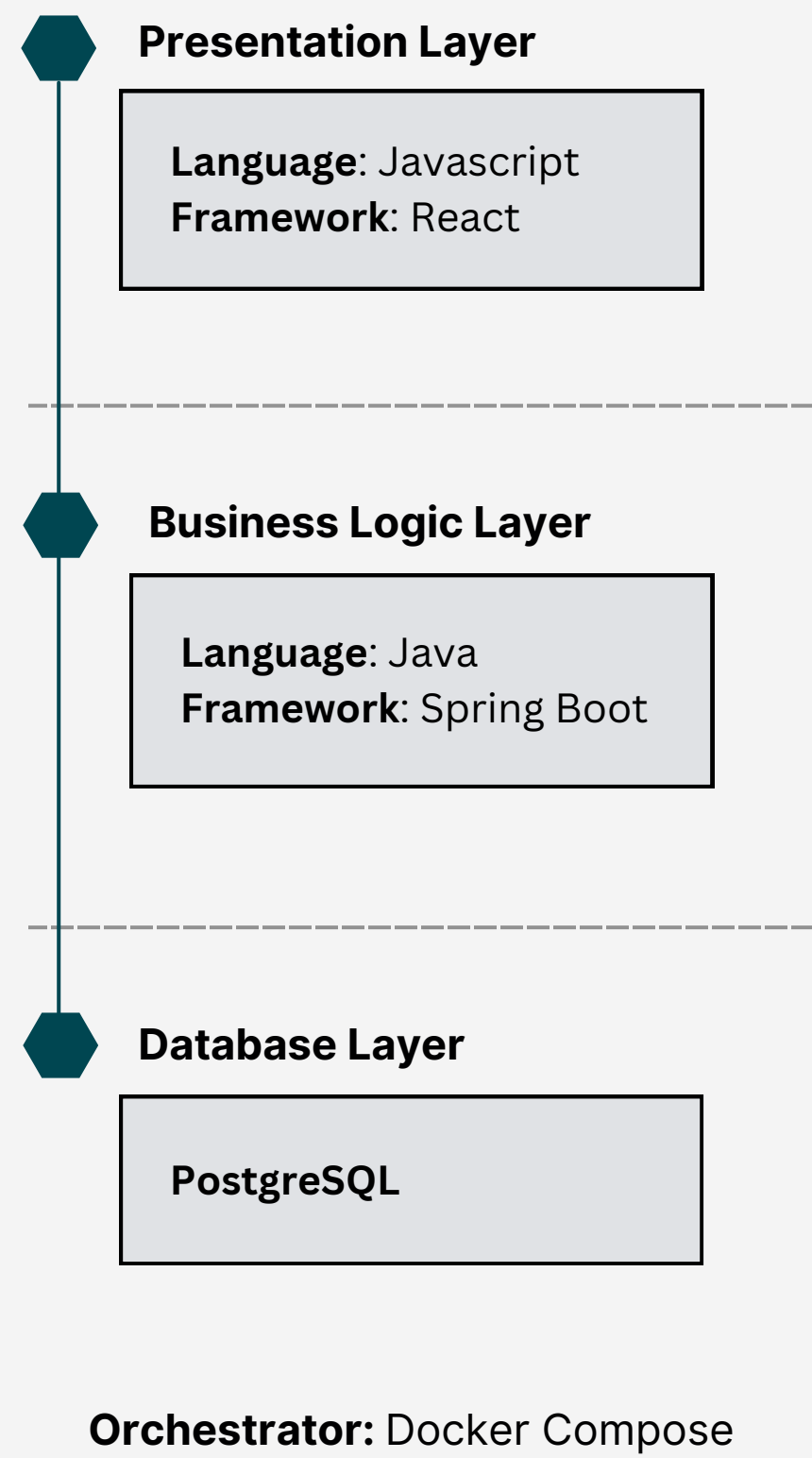
Chat

Send, receive and delete messages

Technologies

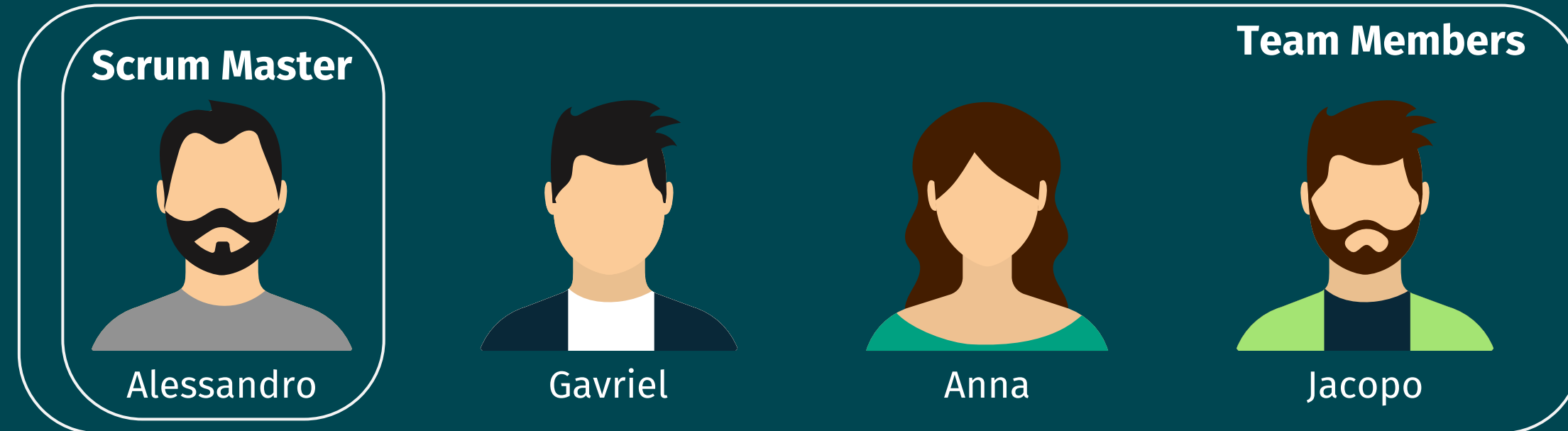


ARCHITECTURE



SCRUM

ROLES



SPRINTS

1. Authentication and profile management + Home
2. Trip creation and management, Cities, Expenses
3. Trip edit, Schedule, Expenses 2.0
4. Chat, Photos, Event map, Waether, Fix

**Sprint
duration:
3 weeks**

SCRUM: Sprint 1

21/11/2024 - 10/12/2024: Authentication and profile management + Home

[illegible]

SCRUM: Sprint 2

21/12/2024 - 10/01/2025: Trip creation and management, Cities, Expenses

[illegible]

SCRUM: Sprint 3

13/01/25 - 02/02/25: Trip edit, Schedule, Expenses 2.0

USER STORY	HOURS	WEEK 7							WEEK 8							WEEK 9						
Changing a trip's title	3	■	■																			
Changing a trip's dates	3	■	■																			
Changing a trip's destinations	3	■	■																			
Seeing the schedule	7	■	■	■	■																	
Schedule filtering	1			■	■																	
Activity creation	4			■	■																	
Activity deletion	2			■	■	■																
Seeing an activity's details	5			■	■																	
Changing an activity's information	8										■	■	■	■								
Travel creation	4		■	■	■																	
Travel deletion	2			■	■	■																
Seeing a travel's details	5		■	■	■																	
Changing a travel's information	8										■	■										
Changing a night's place	1														■							
Accommodation creation	3														■	■						
Accommodation deletion	1																■					
Seeing an accommodation's details	2																■	■				
Changing an accommodation's information	4																					
Changing an expense's title	2	■	■	■																		
Changing an expense's amount	7	■	■	■																		
Changing an expense's split	8	■	■	■																		
Changing an expense's date	2	■	■	■																		
Delete an expense	5											■										
Seeing balances	6								■	■												
Seeing debts/credits	2								■	■					■							

SCRUM: Sprint 4

01/03/25 - 21/03/25: Chat, Photos, Event map, Waether, Fix

[illegible]

SCRUM: Burndown Chart



Thank you!

