E-Farmers

Microservices-based e-commerce application

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Introduction

E-Farmers is an e-commerce website that aims to connect local farmers with customers who are interested in buying fresh and locally sourced products.

Main Actors

- Customers
- Farmers
- Riders

Architecture

Front-end

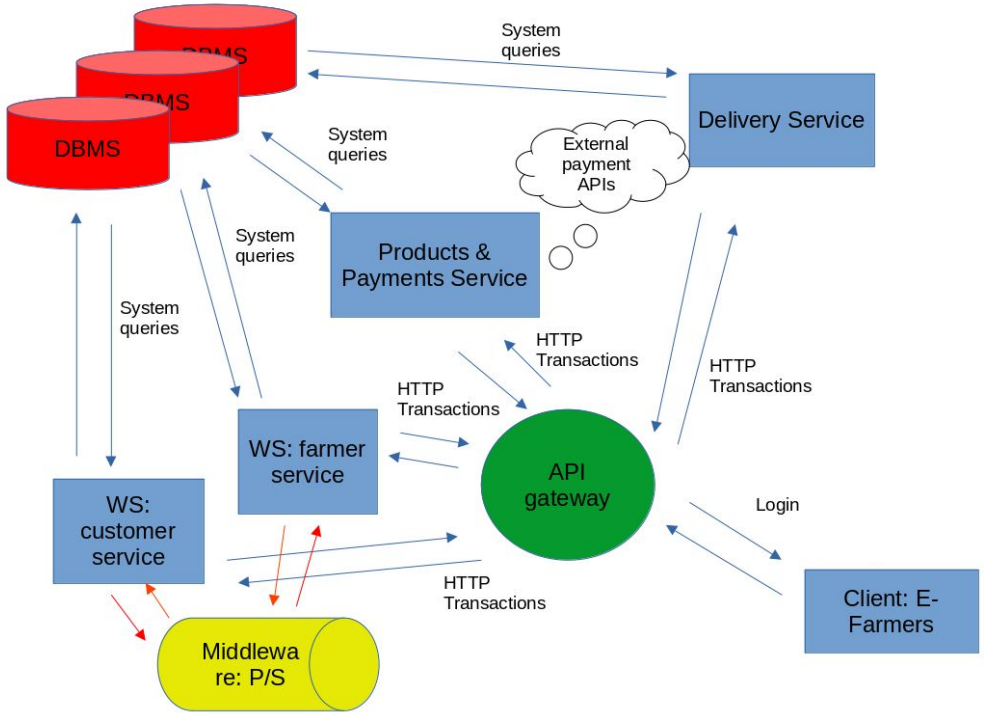
- ReactJS

Back-end

- Django REST framework
- RabbitMQ

DB

- PostgreSQL
- SQLite



Functionalities

User Microservice
- Authentication
- Reviews
- Badges
- Delivery Service

Insertion Microservice
- Selling Foodstuffs Boxes
- Calendar
- Book Foodstuffs Boxes

Shopping Cart Microservice
- Buying Foodstuffs Boxes

Payments & Orders Microservice
- Perform Payments via Stripe API
- Check Out Orders

Subscription Microservice
- Subscription to Farmer
- Notification Mechanism

Sprints - 2 weeks each

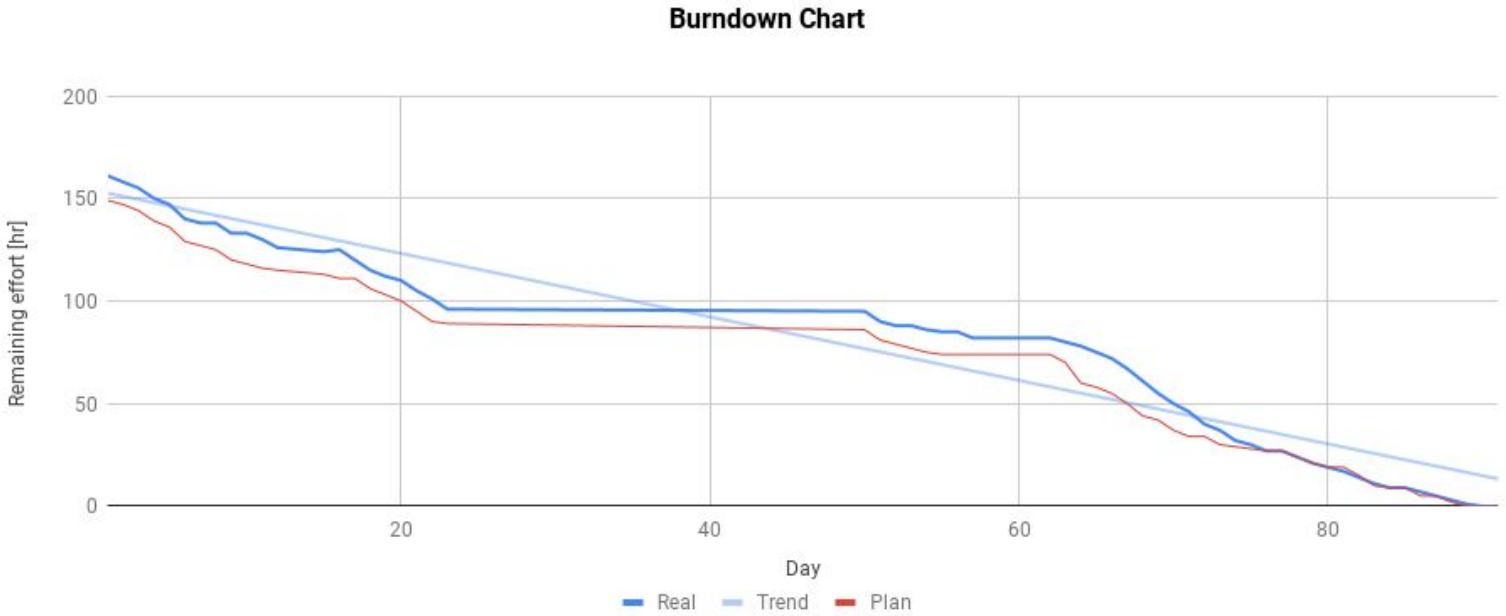
Sprint 1 (06/06/2022 - 20/06/2022): Discuss application design and technologies. Then implement the basics of the applications: Registration via email, User page, Insertions page.

Sprint 2 (20/06/2022 - 04/07/2022): Add more features to the existing pages by refining the front-end in React. Now, the farmer can modify and delete his insertions. Moreover, a user can inspect the seasonal calendar. Implement JWT authentication and authorization checks.

Sprint 3 (04/03/2023 - 18/03/2023): Booking boxes from calendar and subscription mechanism. Shopping cart and payment implementation.

Sprint 4 (18/03/2023 - 01/04/2023): Rider page and functionalities. Containerization and implementation of last functionalities, such as OAuth registration and farmer's badges. Bug fixing.

Burndown Chart



COCOMO

COCOMO II (Constructive Cost Model) is a software cost estimation model.

Published by Dr. Barry Boehm in 1981

Estimated: 10.123 SLOC

Real: 20.530 SLOC

Results

Software Development (Elaboration and Construction)

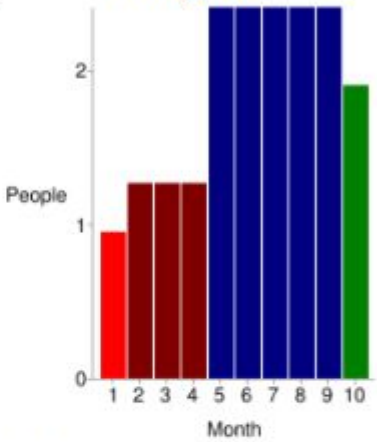
Effort = 17.9 Person-months
Schedule = 9.1 Months
Cost = $89626

Total Equivalent Size = 10123 SLOC
Effort Adjustment Factor (EAF) = 0.51

Acquisition Phase Distribution

Phase	Effort (Person-months)	Schedule (Months)	Average Staff	Cost (Dollars)
Inception	1.1	1.1	1.0	$5378
Elaboration	4.3	3.4	1.3	$21510
Construction	13.6	5.7	2.4	$68116
Transition	2.2	1.1	1.9	$10755

Staffing Profile



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

Phase/Activity	Inception	Elaboration	Construction	Transition
Management	0.2	0.5	1.4	0.3
Environment/CM	0.1	0.3	0.7	0.1
Requirements	0.4	0.8	1.1	0.1
Design	0.2	1.5	2.2	0.1
Implementation	0.1	0.6	4.6	0.4
Assessment	0.1	0.4	3.3	0.5
Deployment	0.0	0.1	0.4	0.6

References

- Slides template: https://github.com/pietro-nardelli/sapienza-ppt-template
- Cocomo Model : http://softwarecost.org/tools/COCOMO/
- React: https://react.dev/
- Django: https://www.django-rest-framework.org/
- PostgreSQL: https://www.postgresql.org/
- RabbitMQ: https://www.rabbitmq.com/
- Google OAuth: https://developers.google.com/identity/protocols/oauth2
- Stripe: https://stripe.com/docs

Let’s move on to the demo!