
MyPics

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Idea

Interactive dashboard to share images and look for the ones uploaded by other users.

Functionalities:

- Show the dashboard with most popular images and images uploaded by followed users
 - Manage user authentication
 - Show a page related to users' profiles containing all the images uploaded by them
 - Allow users to upload, search and see images
 - Allow users to follow other users to easily access their user profile and images
-

User stories & Prototypes

Login

AS A	I WANT TO	SO THAT I CAN	ADDED BY
Non-logged registered user	Login into the system	Use system's services	Everyone

MyPics

Login

[Forgot password?](#)

Login

Not registerd yet? [Sign Up!](#)

Sign up

AS A	I WANT TO	SO THAT I CAN	ADDED BY
Guest	Register to the system	Create my profile	Everyone

MyPics

Sign Up

Username

Email

Password

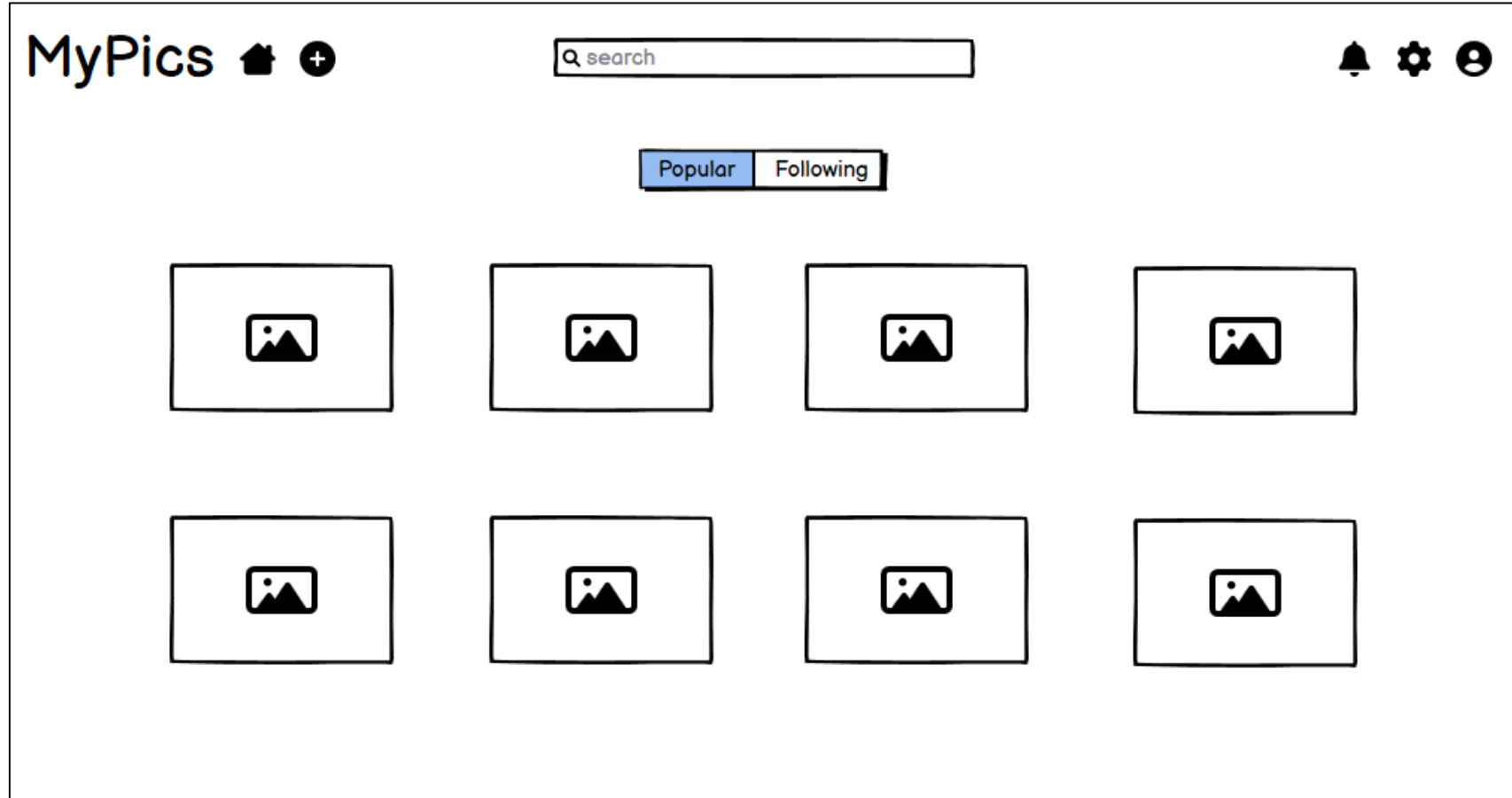
👁

Sign Up

Main

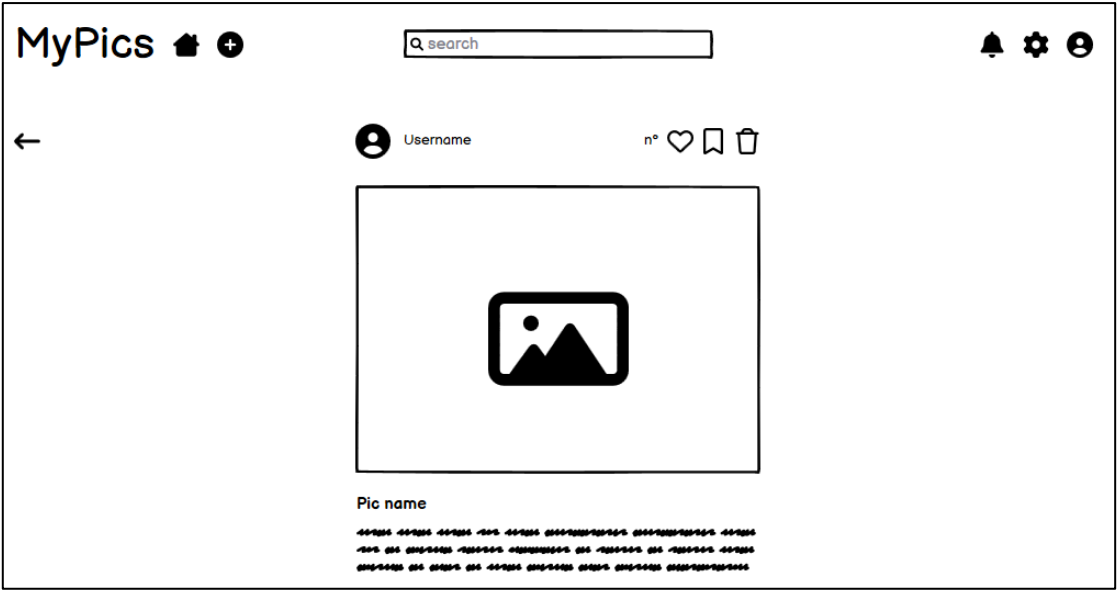
AS A	I WANT TO	SO THAT I CAN	ADDED BY
Logged user	Access the homepage	Discover the most popular images	Everyone
Logged user	Access the homepage	Discover images published by followed users	Everyone
Logged user	Search for images	Visualize them	Everyone
Logged user	Search for other users	Visualize their profile and their images	Everyone
Logged user	Get notified	Know if another user liked or commented one of my image or followed me	Everyone
Logged user	Access other user's profile page	Visualize his details and published images	Everyone
Logged user	Visualize image	Visualize its details and comments	Everyone

Main



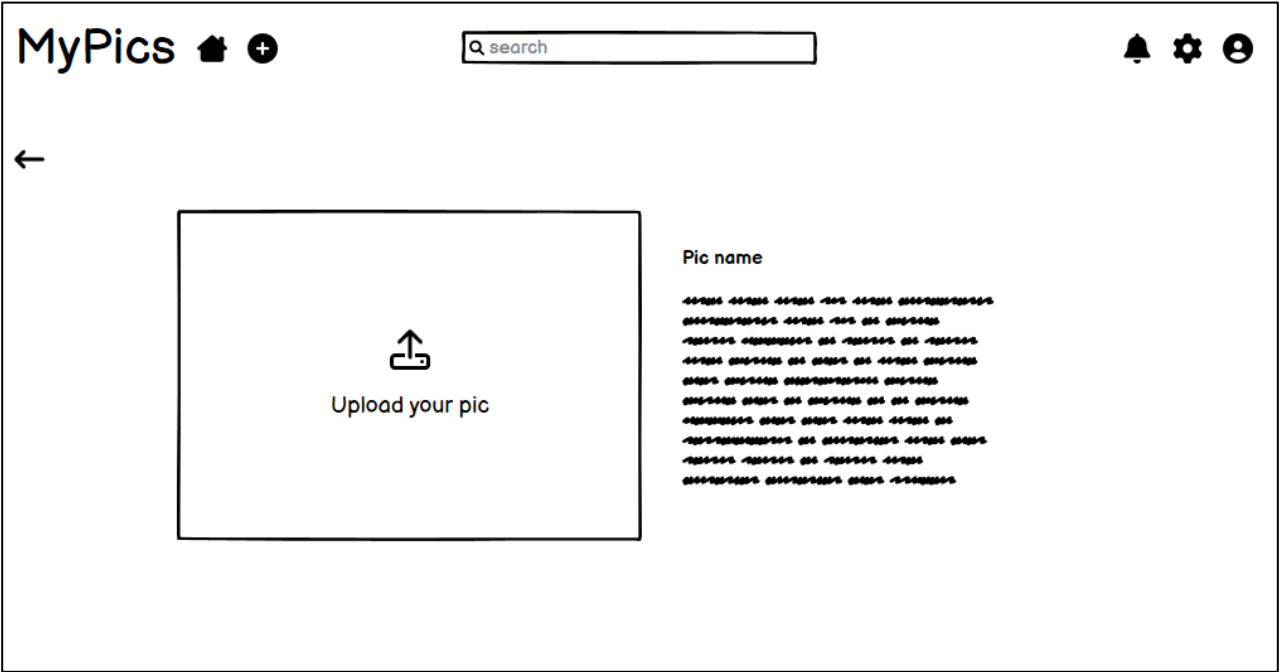
Pic

AS A	I WANT TO	SO THAT I CAN	ADDED BY
Logged user	Like an image	Express my appreciation about it	Everyone
Logged user	Save an image	Discover the most popular images	Everyone
Logged user	Remove an uploaded image	Deny to other users to visualize it	Everyone



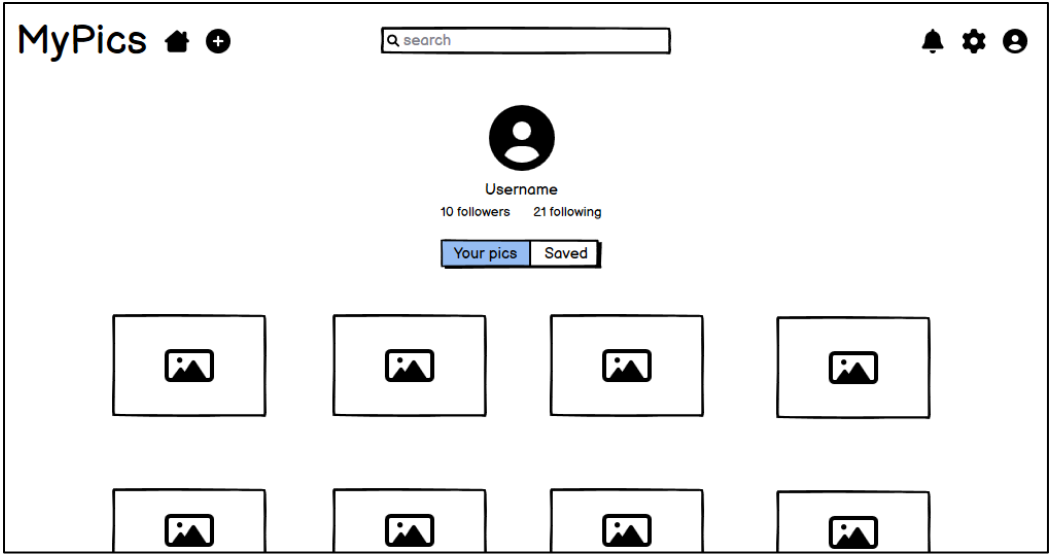
Add pic

AS A	I WANT TO	SO THAT I CAN	ADDED BY
Logged user	Upload an image	Share it with other users	Everyone



User profile



AS A	I WANT TO	SO THAT I CAN	ADDED BY
Logged user	Access my profile	Visualize all my published images	Everyone
Logged user	Access my profile	Visualize all my saved images	Everyone
Logged user	Access user profile	Visualize followers/followed users	Everyone
Logged user	Follow another user	Stay updated about his new images	Everyone







User settings


AS A	I WANT TO	SO THAT I CAN	ADDED BY
Logged registered user	Logout from the system	Login as another user	Everyone
Logged user	Delete my profile	No longer access the system	Everyone
Logged user	Access my profile settings	Manage it	Everyone


MyPics









New image

Username


Email

Password

Logout

Delete my account

Deleting your account will also delete all your pics



Effort estimation

- Unadjusted function points = 116
- Equivalent SLOC in Java 6148
- Effort = 7.2 person-months
- Schedule = 6.8 months

No.	Module	Function Name	Description	Type	DET	RET / FTR	Complexity	FP	Remarks	Adjust %	FP adjusted
1	User	User	Model stored to represent the users	ILF	5	1	Low	7			7
2	Post	Post	Model stored to represent the posts	ILF	5	1	Low	7			7
3	Comment	Comment	Model stored to represent the comments	ILF	3	1	Low	7			7
4	Notification	Notification	Model stored to represent the notifications	ILF	3	1	Low	7			7
5	Login	Login	Login to the application	EI	2	1	Low	3			3
6	Sign up	Sign up	Sign up to the application	EI	3	1	Low	3			3
7	Main Page	Show popular images	Shows popular images published on MyPics	EQ	5	2	Low	3			3
8	Main Page	Show followed users' images	Shows images published by followed users	EQ	5	2	Low	3			3
9	Search	Search	Search for images published on MyPics or users	EQ	6	2	Average	4			4
10	Pic	Visualize pic	Show image with its details	EO	15	3	Average	5			5
11	Pic	Add pic	Publish image on MyPics	EI	6	2	Average	4			4
12	Pic	Delete pic	Delete published image from MyPics	EI	1	1	Low	3			3
13	Pic	Add/Remove like	User add/remove like on post	EI	2	2	Low	3			3
14	Pic	Add comment	User add comment on post	EI	5	3	High	6			6
15	Pic	Delete comment	User delete previously published on post	EI	1	1	Low	3			3
16	Pic	Save pic	User save an image	EI	2	2	Low	3			3
17	Profile	Show published images	Show images on user profile	EQ	5	2	Low	3			3
18	Profile	Show saved images	Show saved images on user profile	EQ	5	2	Low	3			3
19	Profile	Follow/Unfollow user	User follow/unfollow another user	EI	2	1	Low	3			3
20	Profile	Visualize followers	Show list of followers	EO	4	1	Low	4			4
21	Profile	Visualize followed users	Show list of followed users	EO	4	1	Low	4			4
22	Profile settings	Update profile pic	Update profile pic	EI	2	1	Low	3			3
23	Profile settings	Update username	Update username	EI	2	1	Low	3			3
24	Profile settings	Update email	Update email	EI	2	1	Low	3			3
25	Profile settings	Update password	Update password	EI	2	1	Low	3			3
26	Profile settings	Delete account	Delete account registered on MyPics	EI	1	1	Low	3			3
27	Notification	Show notifications	Show notifications of received likes, comments and follows	EQ	6	3	Average	4			4
28	Notification	Update notification	Update not read notification to read notification	EI	2	1	Low	3			3
29	Notification	Add notification	Add notification on database	EI	5	3	High	6			6

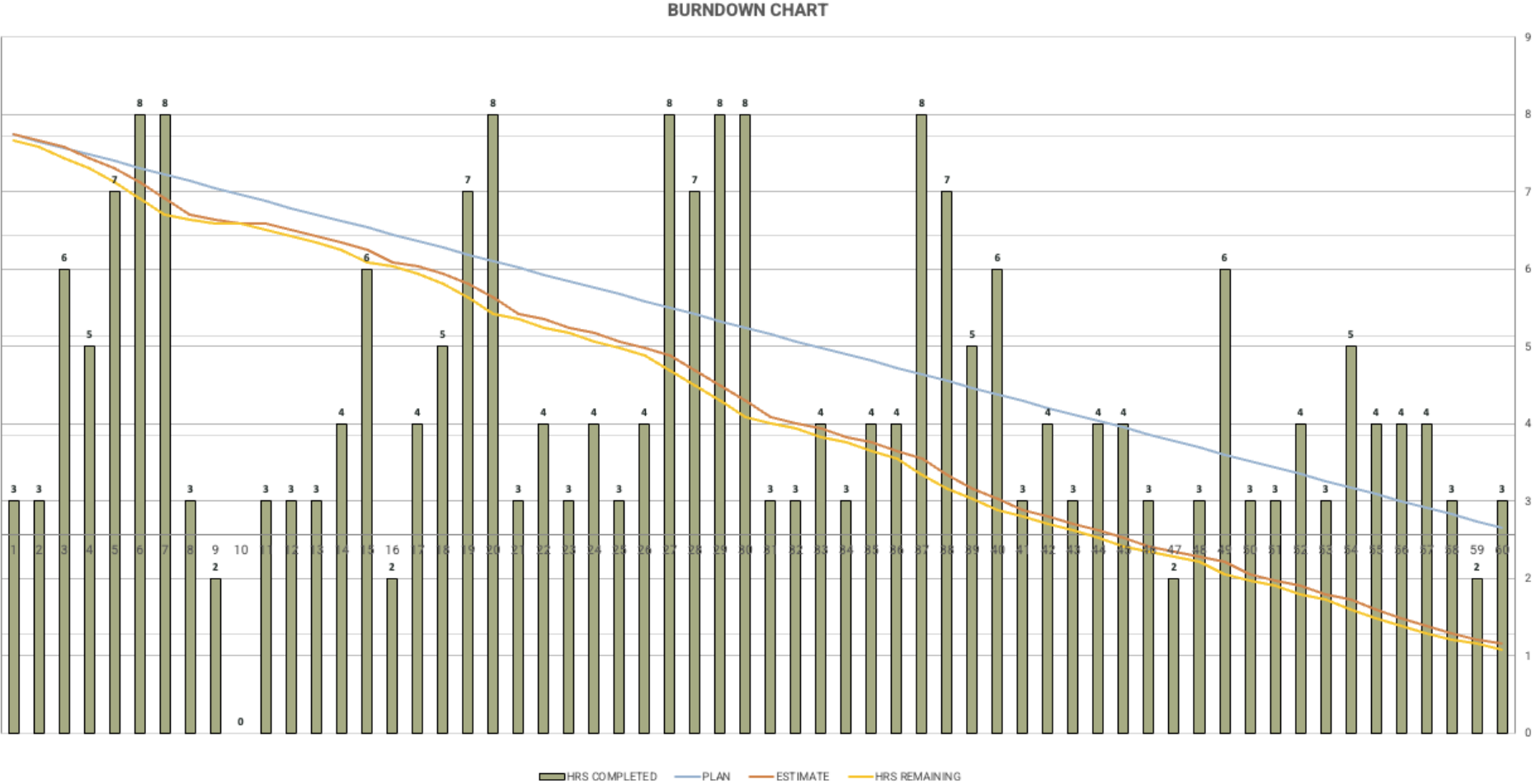
Work Analysis

- 6 Sprints
- 60 Total Days
- 201 Estimated Hours
- 3.35 Avg Estimated Hours per day
- 216 Completed Hours

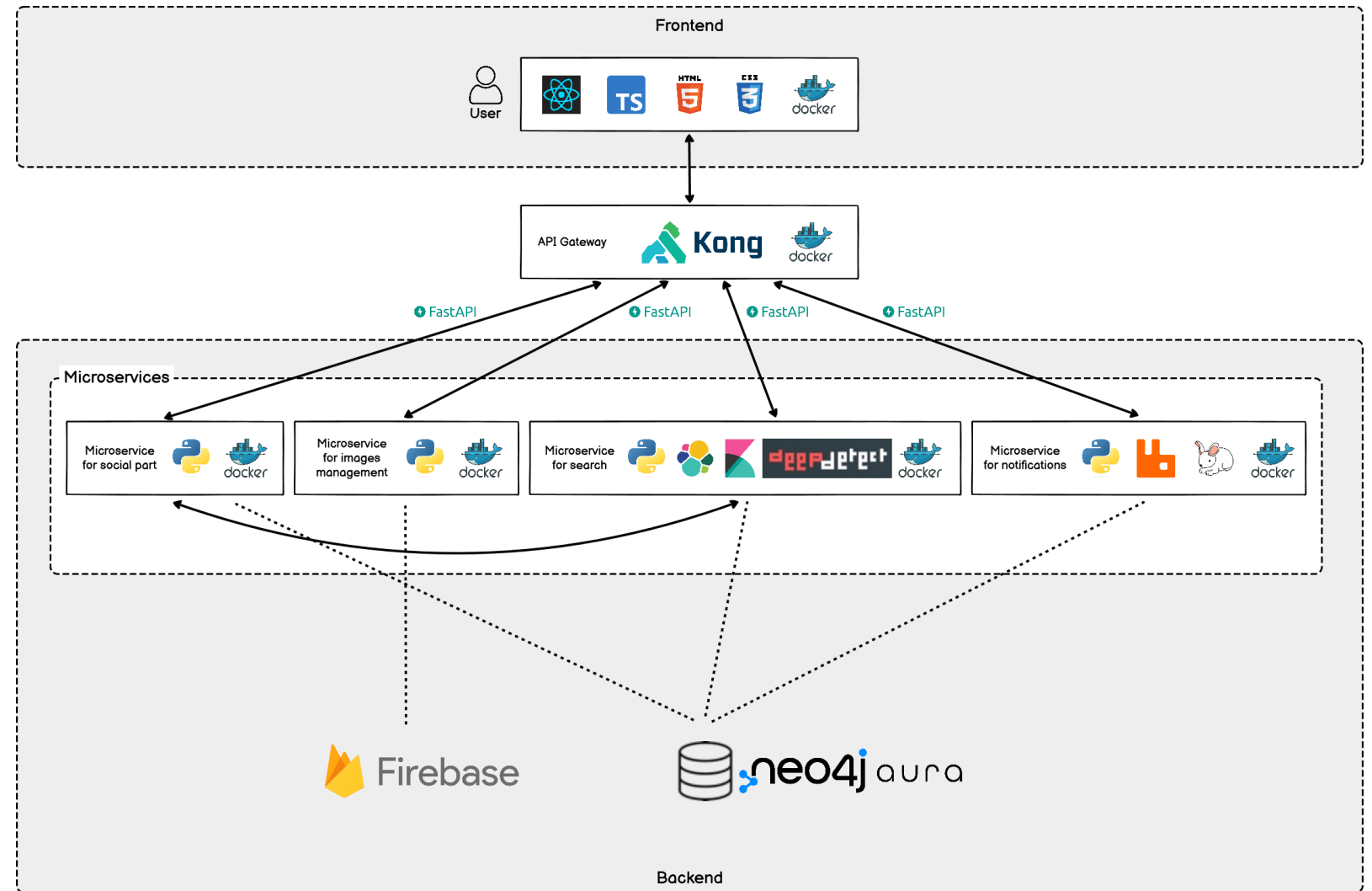
TASK TITLE	TASK OWNER	AMOUNT OF WORK IN HOURS			SPRINT	START DATE	DUE DATE	DURATION
		ESTIMATE	COMPLETED	REMAINING				
Project draft		17	16	1	2			
User stories	Everyone	4	4	0	2	06/02/2023	07/02/2023	2
Mockups	Everyone	6	5	1	2	07/02/2023	08/02/2023	2
Function point & CoCoMo	Everyone	4	4	0	2	09/02/2023	09/02/2023	1
Product backlog	Everyone	3	3	0	2	10/02/2023	10/02/2023	1
Documentation	Everyone	3	3	0	2	10/02/2023	10/02/2023	1
Front-end		113	123	-10	2,3,4,5,6			
React initial setup	Everyone	4	6	-2	2	13/02/2023	14/02/2023	2
Welcome page	Ficorella	2	2	0	2	15/02/2023	16/02/2023	2
Sign-in page	Ficorella	3	3	0	2	16/02/2023	17/02/2023	2
Forgot password page	Sisti	3	3	0	2	15/02/2023	16/02/2023	2
Sign-up page	Sisti	3	3	0	2	16/02/2023	17/02/2023	2
Homepage	Turbessi	5	6	-1	2	15/02/2023	17/02/2023	3
App-bar	Everyone	3	3	0	2	17/02/2023	17/02/2023	1

TASK TITLE	TASK OWNER	AMOUNT OF WORK IN HOURS			SPRINT	START DATE	DUE DATE	DURATION
		ESTIMATE	COMPLETED	REMAINING				
Back-end & API Gateway		40	44	-4	3,4,5			
DeepDetect initial setup	Everyone	9	10	-1	4	06/03/2023	08/03/2023	3
Elasticsearch & Kibana initial setup	Everyone	9	11	-2	4	09/03/2023	13/03/2023	5
Search microservice	Ficorella	5	5	0	4	14/03/2023	15/03/2023	2
Images indicization microservice	Sisti	5	5	0	4	14/03/2023	15/03/2023	2
Social microservice 2nd version	Turbessi	5	5	0	4	14/03/2023	15/03/2023	2
Front-end		113	123	-10	2,3,4,5,6			
Search results page	Ficorella, Sisti	7	7	0	4	16/03/2023	17/03/2023	2
Comments section	Turbessi	4	4	0	4	16/03/2023	17/03/2023	2

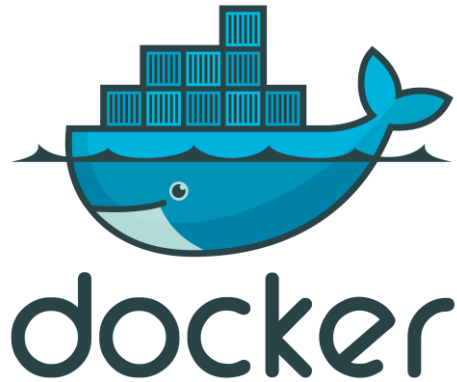
Burndown Chart



System architecture



Containerization



- The system architecture is based on microservices, each running on its own Docker container and each accessing its own data
- These containers are orchestrated through Docker Compose

Frontend

Responsible for the UI, dealing with the visualization and interaction with the user



Api Gateway



- Lightweight, fast, and flexible cloud-native API gateway
- Single entry point for the client
- Reverse proxy that allows to manage, configure, and routes requests to the proper microservice

Backend



- The backend microservices were developed using Python
- All of them expose a REST interface that leverages on FastAPI framework.

Social and image management microservices



Expose APIs to:

- Manage all social aspects of the system (i.e. user registration, likes, comments, new posts)
- Upload images on the Firebase cloud storage



firebase

Search microservice



- Elasticsearch is used as search engine
- Kibana provides search and data visualization capabilities for data indexed in Elasticsearch
- Deepdetect deep learning platform offers pre-trained models for classifying images' based on represented subjects and the ability to search for images based on them through Elasticsearch



Notifications microservice



- RabbitMQ is a message oriented middleware
- CloudAMQP provides managed RabbitMQ servers in the cloud, in order to be able to access all the different queues in the cloud from any device

Persistence



- Neo4j NoSQL graph database is used in order to store all the system data
- Neo4j AuraDB offers a database instance in the cloud with which all the before mentioned microservices can communicate

Thank you
for your
attention!

