Golden Auctions : Booklet

1. Initial Idea :

Web application in which users can create their own auction or partecipate to those of other people by betting a certain price .

System Objectives :

- Access to main page, in which trending auctions are available.
- Search for a specific auction.
- Participate to an auction.
- Create their own auction.
- Register and access with its credentials.
- Access to the page containing their active auctions.
- Access to the page containing the auctions in which they are participating.
- Update their credentials.
- Logout from the Application.

Potential Users :

- Someone who wants to take part of an auction, with the convenience of doing it from home or other comfortable places, without physical attending it.
- Someone who wants to sell items in a fast and easy way.

Use Cases :

- User registers to the system
- User logins to the application
- User accesses the home page to visualize the current available auctions
- User follow an auction
- User participate to an auction
- User create his own auction
- User manage his profile
- User logouts
- User deletes the account

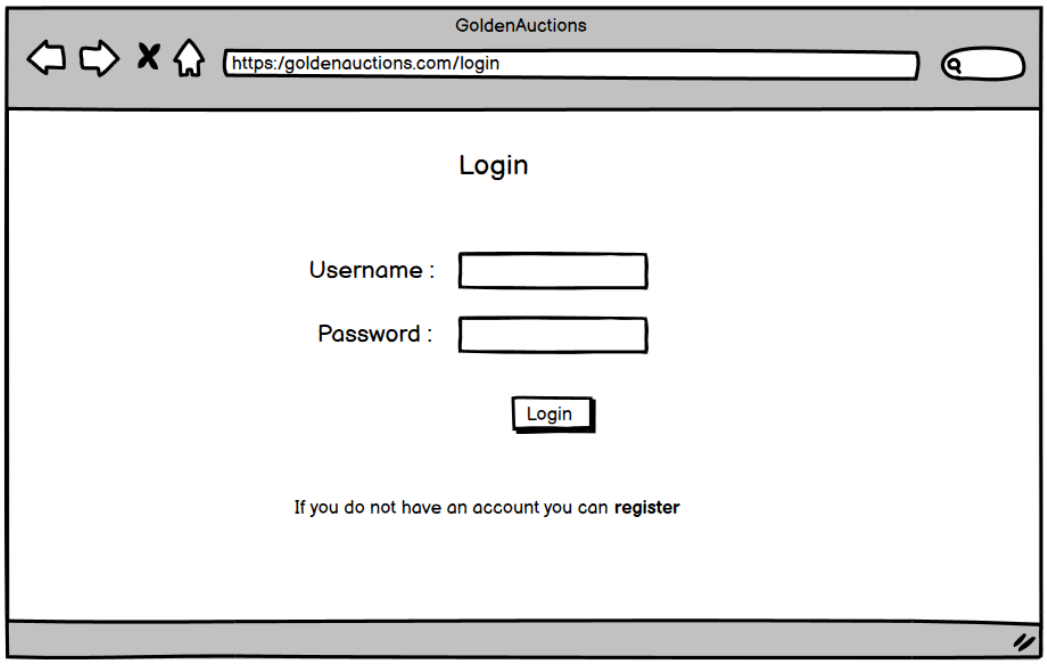
2. User Stories and Prototypes :

Sign-up :

USER STORY	PRIORITY	VALUE	RISK	ESTIMATE
As an unregistered user, I want to be able to register to the application so that I can access it.	1 High	1 High	2 Med	2

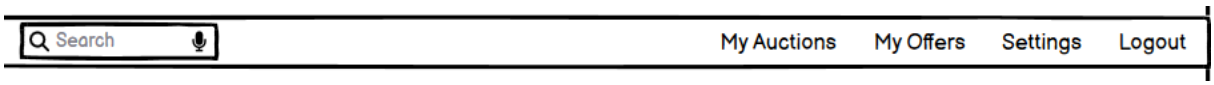
Login :

USER STORY	PRIORITY	VALUE	RISK	ESTIMATE
As a registered non-logged user, I want to perform the login so that I use the services.	1 High	1 High	1 High	1



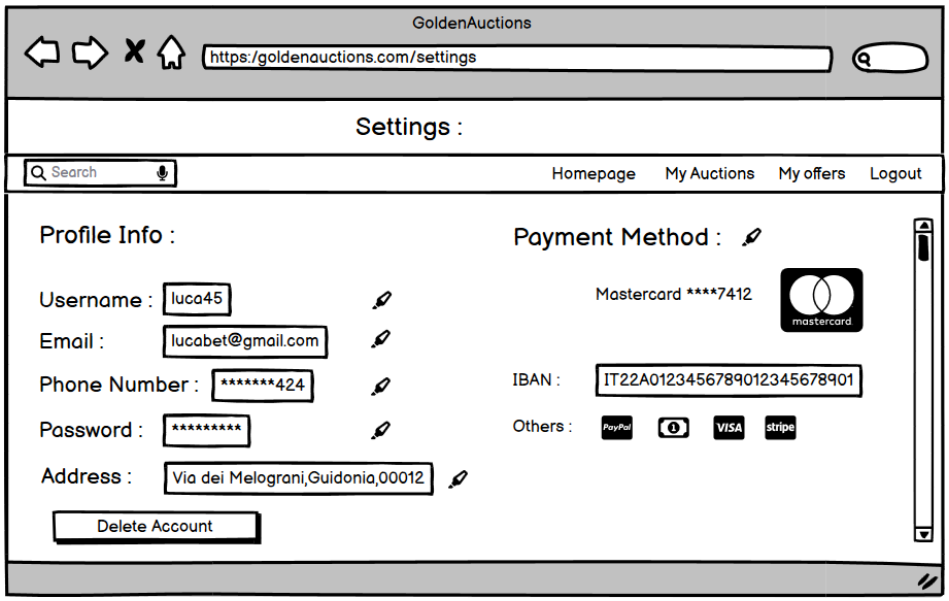
Logout :

As a registered user, I want to perform the logout so that I can disconnect safely.	1 High	1 High	1 High	1



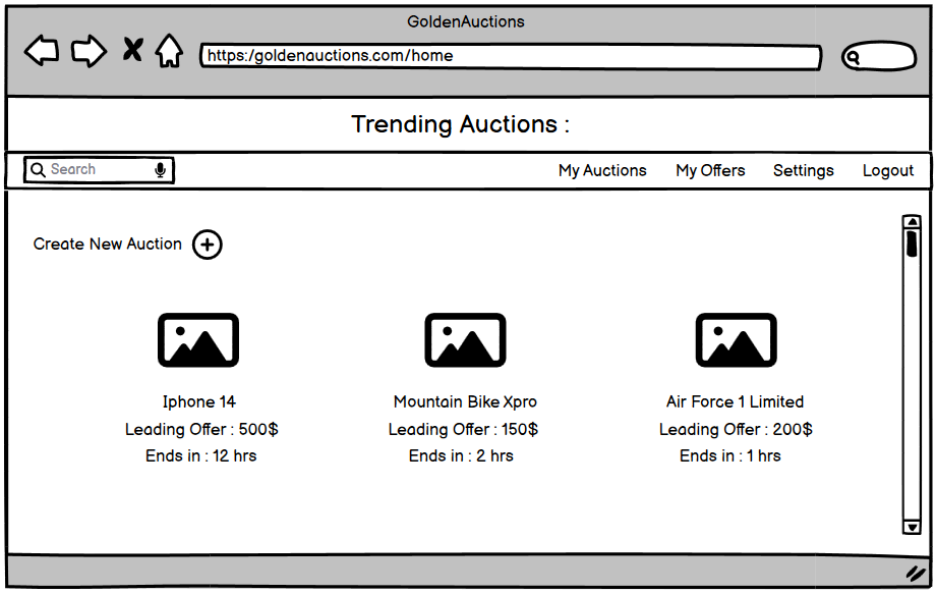
Settings :

As a registered user, I want to access my Settings Page so that I can display my details.	2 Med	2 Med	4 Low	2
As a registered user, I want to access my Settings Page so that I can manage my profile.	2 Med	2 Med	1 High	2



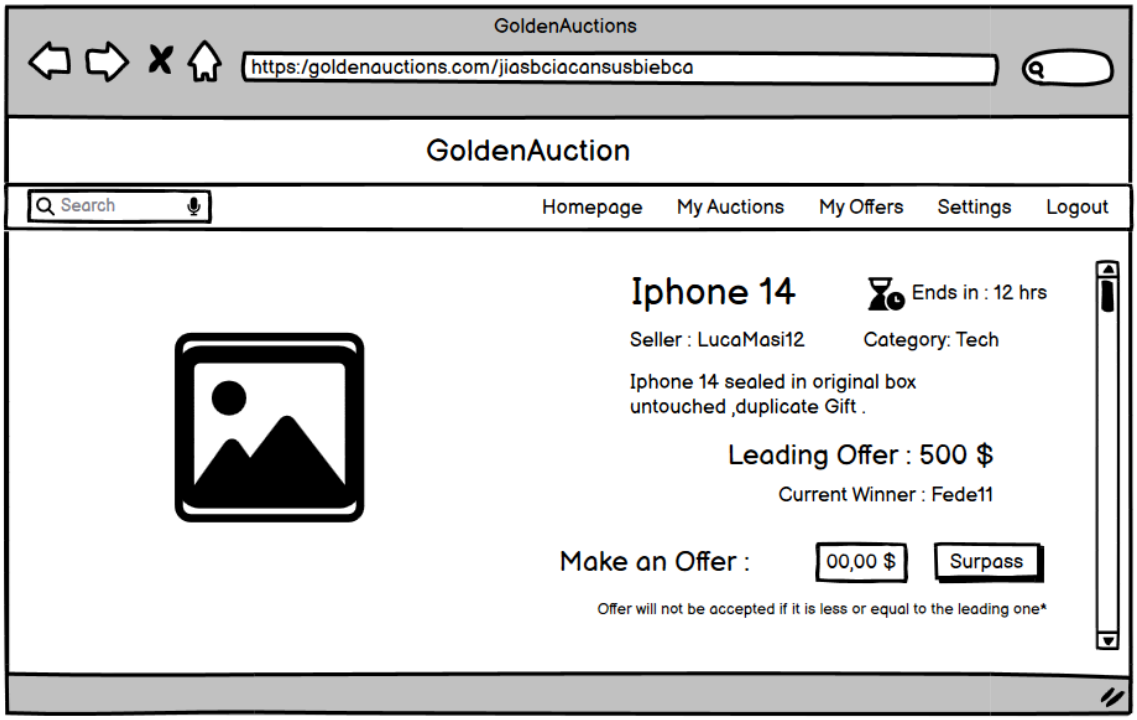
Homepage :

As a user, I want to access the Home Page so that I can display trending auctions.	1 High	1 High	3 Med	5
As a user, I want to search for an auction so that I can display it.	1 High	1 High	3 Med	3
As a user, I want to select an auction from the trending ones so that I can display it.	3 Med	2 Med	4 Low	2



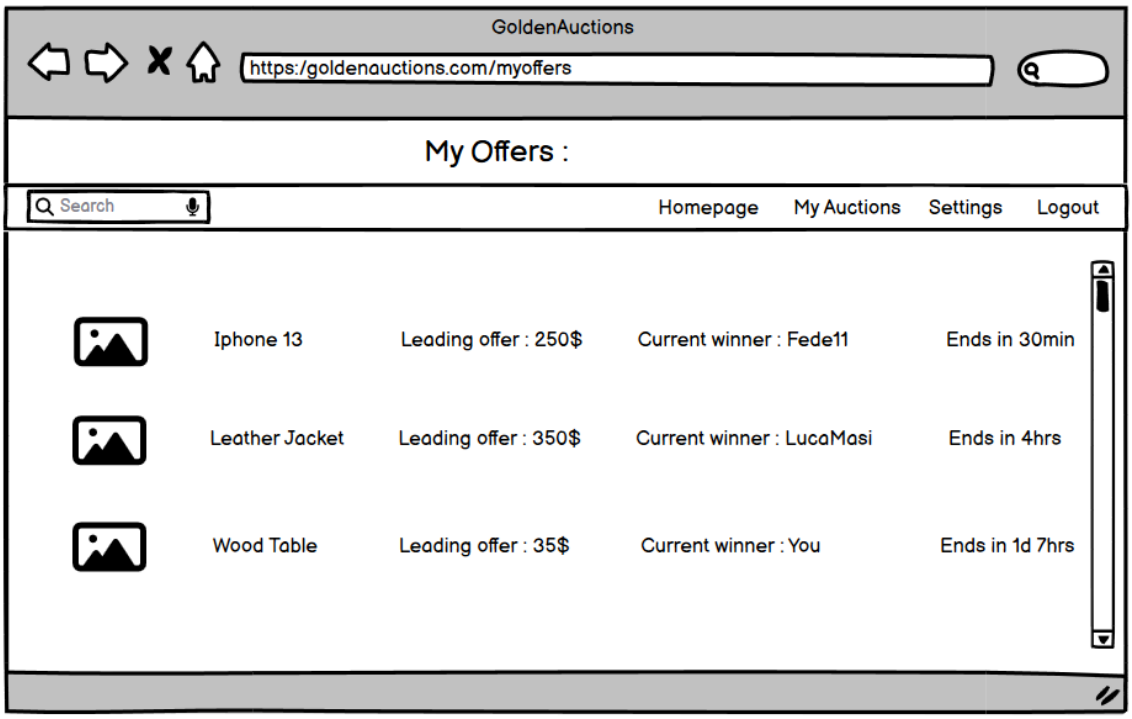
Auction :

As a registered user, I want to make an offer for an auction so that I can participate to it.	1 High	1 High	1 High	2
As a user, I want to check the current leading offer of an auction so that I can decide if surpass it.	1 High	1 High	2 Med	1
As a registered user, I want to check the result an auction in which I offered so that I can know who won.	1 High	1 High	1 High	1



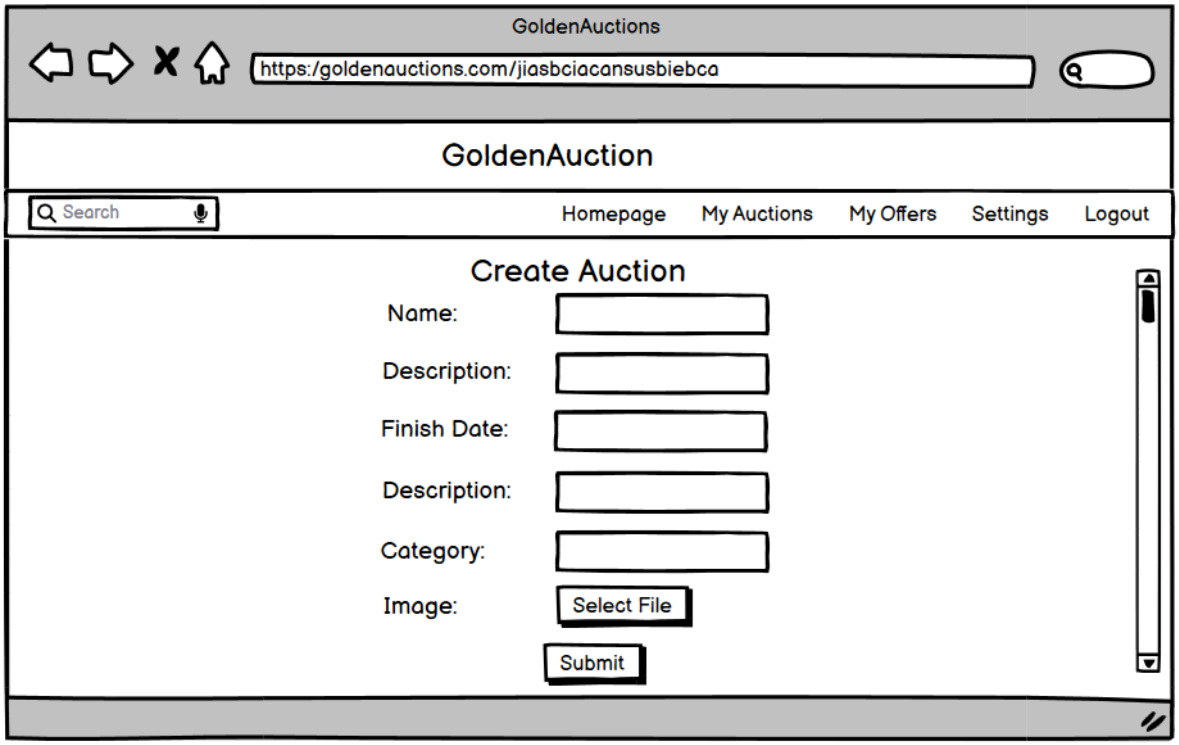
My Offers :

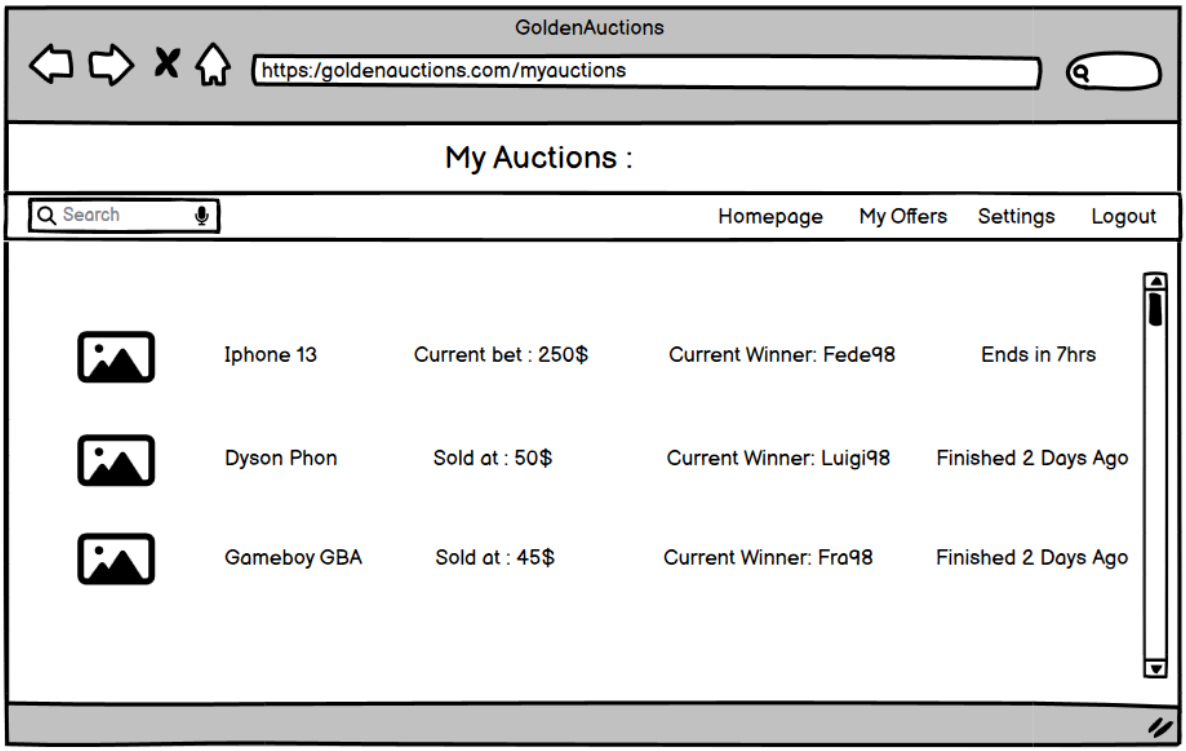
As a registered user, I want to access the My Offer Page so that I can display the auctions in which I offered	1 High	1 High	2 Med	1



My Auctions and Create Auction:

As a registered user, I want to create a new auction so that I can sell an object.	1 High	1 High	1 High	3
As a registered user, I want to access the My Auction Page so that I can display the auctions I created	2 Med	2 Med	3 Med	1





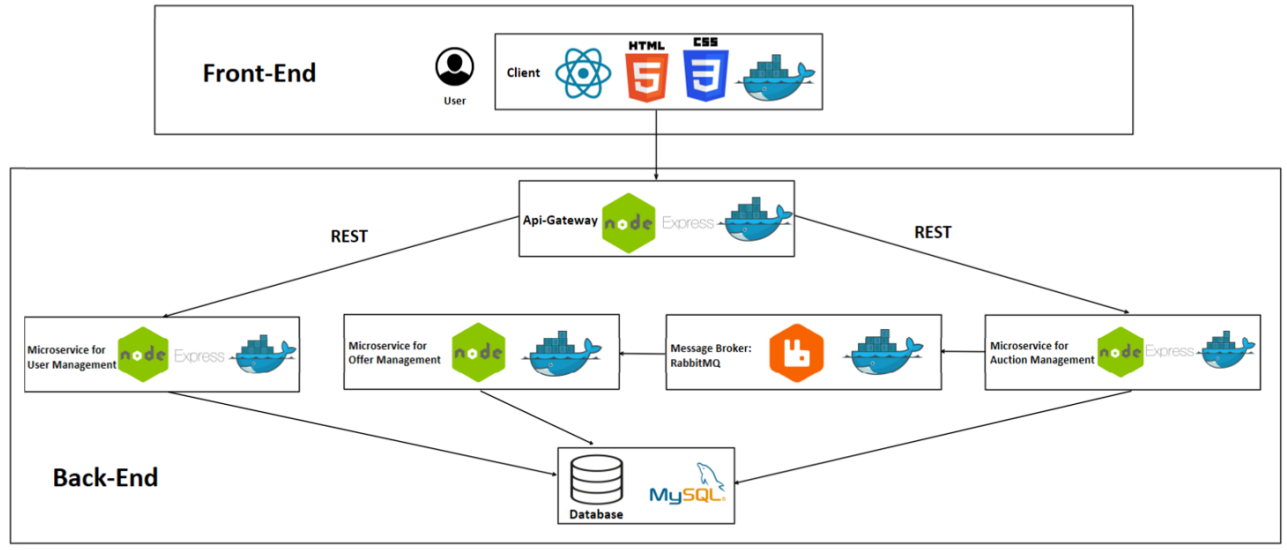
3. Effort estimation :

No.	Module	Function Name	Description	Type	DET	RET/FTR	Complexity	Function Points	Remarks
1	User	User	Model used to store the user	ILF	6	1	Low	7	
2	Auction	Auction	Model used to store the auction	ILF	7	1	Low	7	
3	Item	Item	Model used to store the item	ILF	5	1	Low	5	
4	Authentication	Login	Login to the application	EI	2	1	Low	3	
5	Authentication	Register	Register to the application	EI	3	1	Low	3	
6	Profile	Display my settings page	Display my profile details	EQ	6	1	Low	3	
7	Profile	Edit profile information	Modify profile details	EI	6	1	Low	3	
8	Home page	Display home page	Display trending auctions	EQ	4	2	Low	4	2 DET from Auction + 2 DET from Item
9	My auctions	Create auction	Create a new auction	EI	12	2	Medium	4	7 DET from Auction + 5 DET from Item
10	My auctions	Display my offers	Display the auctions I'm participating in	EQ	5	2	Low	4	3 DET from Auction + 2 DET from Item
11	My auctions	Display my created auctions	Display the auctions I've created	EQ	5	2	Low	4	3 DET from Auction + 2 DET from Item
12	Auctions	Search auction	Search for an auction	EI	2	1	Low	3	
13	Auctions	Make an offer	Make an offer to a certain auction	EI	4	1	Low	3	
14	Auctions	Display the Page of an Auction	Display infomation of an Auction	EQ	8	2	Medium	5	4 DET from Auction + 4 DET from Item

Total of Unadjusted Function Points : 58
Real SLOC : 4812

4. System Architecture :

The system architecture is realized by an orchestration of micro-services organized in docker containers that can communicate via Api-Gateaway .



- **Front-End :** component that displays and manages the interaction of the React Application on Client side.
- **Api-Gateaway :** component that is in charge of orchestrating Microservices. It contacts the two Microservices dealing with User and Auction Management.
- **User Management :** Microservice that manages all the tasks related to the Accounting, like login, register and settings.
- **Auction Management :** With this Microservice is possible to manage the Auctions. Indeed with it we can initialize a new Auction or accede to the data of an already existing one. It uses RabbitMQ to communicate with the Microservice for Offer Management.
- **Offer Management :** It deals with users that surpass an offer in an Auction. It receives the communication of the offer form a Queue managed by RabbitMQ. Each Category of the Objects has a relative Queue, that sends messages to two Workers using a Round-Robin Algorithm.
- **Database :** MySql DB, that stores data about Users, Auctions, and Items that are put up for Auction. Most of our Microservices communicate with it, to create, modify or retrieve cells of the Tables .

5. Sprint Analytics :

Total of 5 Sprints in 60 days

Sprint 1 : 28/11/2023-12/12/2023

Project Setup		16	18	-2	2			
User Stories	Everyone	4	4	0	2	15/12/2023	15/12/2023	1
Balsamiq Wireframes	Everyone	6	6	0	2	16/12/2023	17/12/2023	2
Function Points & COCOMO Estimation	Everyone	4	6	-2	2	18/12/2023	19/12/2023	2
Documentation	Everyone	2	2	0	2	20/12/2023	20/12/2023	1

Sprint 2 : 15/12/2023-20/12/2023

Project Definition		20	22	-2	1			
Initial Discussion for Ideas	Everyone	4	6	-2	1	28/11/2023	29/11/2023	2
Research of Information	Everyone	4	3	1	1	02/12/2023	02/12/2023	1
Project Planning	Everyone	8	9	-1	1	04/12/2023	06/12/2023	3
Architecture Modeling	Everyone	2	2	0	1	11/12/2023	11/12/2023	1
Sent Project Proposal	Everyone	2	2	0	1	12/12/2023	12/12/2023	1

Sprint 3 : 21/12/2023-11/01/2024

Back-end/Front-end 1		75	86	-11	3			
Inizialition of the project setup	Everyone	3	5	-2	3	21/12/2023	21/12/2023	1
MySQL download and setup, user management	Ambrogio, Fè	3	3	0	3	22/12/2023	22/12/2023	1
Front-end home page,navbar and login	Buccigrossi	8	7	1	3	26/12/2023	27/12/2023	2
Back-end fetching with front-end	Ambrogio, Fè	4	6	-2	3	26/12/2023	27/12/2023	2
Registration page front-end	Buccigrossi	6	4	2	3	29/12/2023	29/12/2023	1
Registration back-end	Ambrogio, Fè	6	6	0	3	30/12/2023	30/12/2023	1
Home page first version	Ambrogio, Buccigrossi	6	8	-2	3	02/01/2024	04/01/2024	3
DB auction and items	Fè	2	2	0	3	02/01/2024	02/01/2024	1
Settings page front-end	Buccigrossi	8	9	0	3	05/01/2024	07/01/2024	3
Settings back-end	Buccigrossi, Fè	10	14	-4	3	05/01/2024	08/01/2024	4
Back-end auction management, auction page	Ambrogio	3	3	-1	3	06/01/2024	06/01/2024	1
Items management DB and visual in each auction	Ambrogio	6	8	-2	4	07/01/2024	09/01/2024	3
Fix back-end auctions managements	Fè	3	4	-1	4	10/01/2024	11/01/2024	2
Fix problems settings with DB	Buccigrossi	3	2	1	4	10/01/2024	11/01/2024	2
Search Page and relative back-end	Ambrogio	4	5	-1	4	10/01/2024	11/01/2024	2

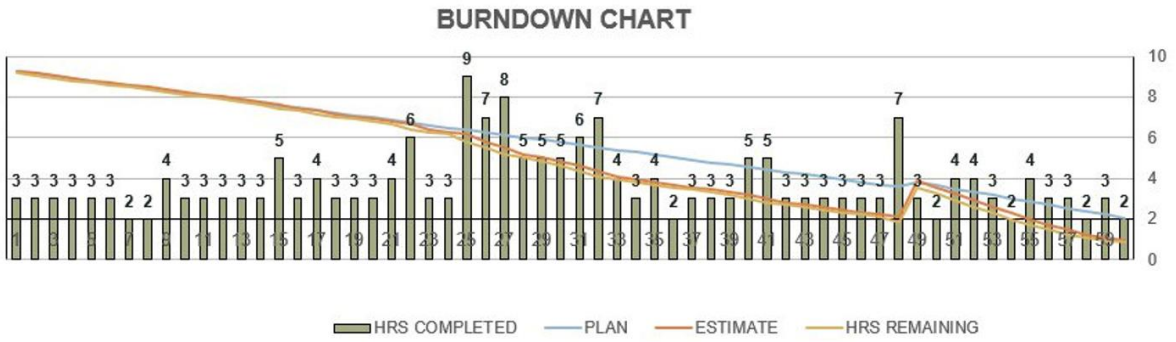
Sprint 4 : 13/01/2024-31/01/2024

Back-end/Front-end 2		48	61	-13	3			
Myoffer page and relative back-end	Ambrogio, Buccigrossi	4	6	-2	4	13/01/2024	14/01/2024	2
DB image management	Fè	4	5	-1	4	13/01/2024	14/01/2024	2
Insert auction page	Buccigrossi	3	3	0	4	15/01/2024	15/01/2024	1
Home page last version	Ambrogio	4	4	0	4	16/01/2024	16/01/2024	1
Fix problems back-end/front-end	Everyone	4	8	-4	4	17/01/2024	19/01/2024	3
Api Gateway Filtering and distribute servers	Ambrogio, Fè	6	8	-2	4	22/01/2024	24/01/2024	3
RabbitMQ setup, docker image	Buccigrossi	5	5	0	4	22/01/2024	24/01/2024	3
RabbitMQ manage queue and receivers	Everyone	8	9	-1	4	26/01/2024	28/01/2024	1
Fix upload image problem back-end	Everyone	2	6	-4	4	29/01/2024	30/01/2024	2
Refine CSS and popup	Amrbogio, Buccigrossi	4	3	1	4	31/01/2024	31/01/2024	1
Control data insertion registration, settings back-end	Fè	4	4	0	4	31/01/2024	31/01/2024	1

Sprint 5 : 02/02/2024-16/02/2024

Containerization and Frontend Fixes		23	35	-12	5			
Docker setup and first version of mysql container	Everyone	4	5	-1	5	02/02/2024	03/02/2024	2
Containerization front-end and back-end servers	Everyone	6	8	-2	5	05/02/2024	06/02/2024	2
Docker compose first attempt	Everyone	4	6	-2	5	07/02/2024	09/02/2024	3
Fix docker networks problems	Everyone	4	11	-7	5	09/02/2024	12/02/2024	4
Final version deployment	Everyone	5	5	0	5	15/02/2024	16/02/2024	2

Burndown Data :



DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
PLAN	182	179	176	173	170	167	164	161	158	155	152	149	146	143	140	137	133	130	127	124
ESTIMATE	182	179	176	173	170	167	164	162	160	156	153	150	147	144	141	136	133	129	126	123
HRS COMPLETED	3	3	3	3	3	3	2	2	4	3	3	3	3	3	5	3	4	3	3	3
HRS REMAINING	179	176	173	170	167	164	162	160	156	153	150	147	144	141	136	133	129	126	123	120

21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
121	118	115	112	109	106	103	100	97	94	91	88	85	82	79	76	73	70	67	64
120	116	110	107	104	95	88	80	75	70	65	59	52	48	45	41	39	36	33	30
4	6	3	3	9	7	8	5	5	5	6	7	4	3	4	2	3	3	3	5
116	110	107	104	95	88	80	75	70	65	59	52	48	45	41	39	36	33	30	25

41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	58	55	52	49	46	42	39	45	41	37	33	29	25	21	17	13	9	5	1
25	20	17	14	11	8	5	2	47	39	31	23	15	7	-1	-7	-13	-19	-23	-27
5	3	3	3	3	3	3	7	3	2	4	4	3	2	4	3	3	2	3	2
20	17	14	11	8	5	2	-5	39	31	23	15	7	-1	-7	-13	-19	-23	-27	-29

Total estimated Hours : 182
Completed Hours : 222
Remaining Hours : -40
Days : -60
Average estimated Hours per Day : 3.03