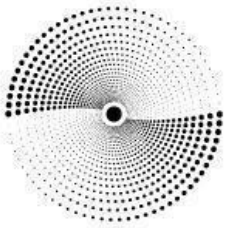
Software Requirements Document

Version 1.0

Apr 21, 2022

UNIVERSALDOT FOUNDATION



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Revision History

Name	Revision comment	Date
Igor Stojanov	Initial draft	04/03/2022
Igor Stojanov	Version 0.1	31/03/2022
Igor Stojanov	Version 1.0	21/04/2022

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Project Description

Overview

UNIVERSALDOT FOUNDATION is building an application that will enable organizations to be started solely based on vision. The platform application will enable users to organize virtually around a common vision, issue their own currency as stock, create tasks and organizations. People will be able to create digital identities with personal skills and interests, and instead of finding work, tasks will be recommended to them based on their personality profile. The freelancing type of work will allow them to choose for whom they work and how much they get paid for their effort.

Product

Universaldot.me is a decentralized web application that aims to reinvent the future of work. This application enables freelancers to create/complete tasks and organize themselves into geographically distributed organizations. The product is built on top of proven blockchain infrastructure, namely Substrate, which has provided the needed groundwork for the product.

Main Features

- creation of personal profiles
- The ability to create and complete tasks
- The ability to create digital organizations

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Product Design

Entity Model

There are three main entities in the application. These are the following:

- Profile
- Task
- DAO

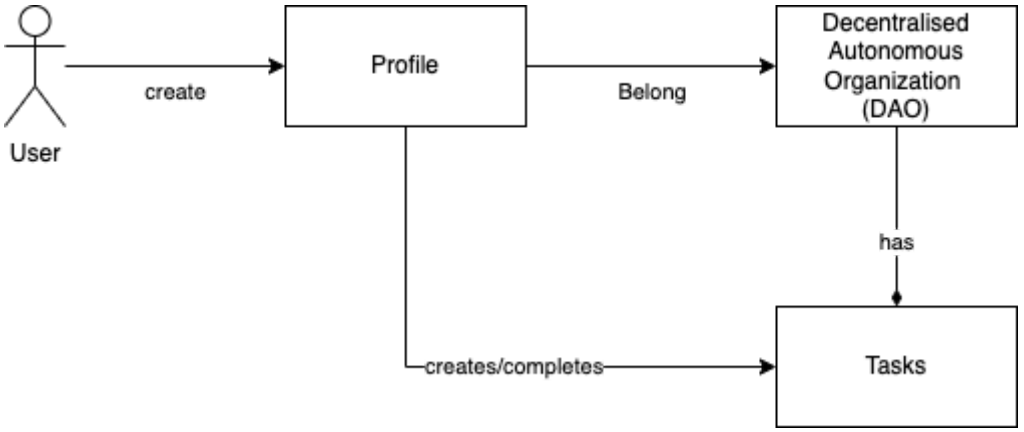

Figure 1. Entity Relationship Diagram

Data Model

Profile

Characteristic	Description	Type	Entry
AccountID	Primary ID for a profile. One profile per AccountID	Pub key	Automatic
Username	Personal description of profile	String	Manual, Mandatory
Interests	Personal interests of the user. Can incorporate skills, preferences, etc.	Array of Strings	Manual, Mandatory

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Reputation	Score of points that the User has earned	Number	Automatic
Balance	Cryptocurrency balance in the native chain coin	Number	Automatic
Portfolio	User can showcase personal portfolio, additional description, etc	String (may contain list of IPFS documents)	Manual, Optional
Availability	Hours **per week** the User is Available	Number (approx. Or list of 10hr,20hr,30hr)	Manual, Mandatory
Profile History	Previous work history of the User	Array of Tasks	Automatic

Task

Characteristic	Description	Type	Entry
TaskID	Unique Identifier for each task	Hash	Automatic
Title	Task Title that describes the task	String	Manual, Mandatory
Requirements	Definition that specifies the requirements of the task	String (RichTextEditor?: JSON-Strigify)	Manual, Mandatory
Budget	The budget for a task	Number	Manual, Mandatory
Deadline	Expected end time for the task	Datetime	Manual, Mandatory
Attachments	Additional information that is relevant to a task.	File (Referenced by IPFS Hash)	Manual, Optional
Keywords	Few words used to filter the task (mainly used for the recommendation)	Array of Strings	Manual, Optional
Feedback	Comments that are added to the task. Intermediary	String	Manual, Optional

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	steps of communication between the initiator and volunteer		
Initiator?	The User who created the task	AccoundID	Automatic
Volunteer?	The User who Volunteered for the task	AccountID	Automatic
CurrentOwner	The user who currently is working on the task and thus has ownership of it.	AccountID	Automatic
Related	Group of tasks that are related to the current task.	List of Tasks	Manual
Status	The current status of the task	Enum [Created, InProgress, Closed] To be expanded?	Automatic
Created	The time the task was created	DateTime	Automatic
LastUpdated	Time when the task has been updated	DateTime	Automatic
Completed	Time when the task was completed	DateTime	Automatic

DAO

Characteristic	Description	Type	Entry
ID	Unique identifier for an organization	UUID or similar	Automatic
Name	The name of the organization	String	Manual, Mandatory
Description	Basic description regarding the organization, industry, and goals	String	Manual, Optional
Owner	The account that owns the	Account ID	Automatic, Mandatory

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	organization. The initial owner is the founder. Ownership should be able to be transferred to other accounts.		
Vision	Document that describes company Vision	String (Hash to IPFS Document)	Manual, Mandatory
Members	Members that belong to an organization	Array of AccountID	Manual, Mandatory
Tasks	Tasks that belong to a certain Organization	Array of TaskID	Manual, Mandatory
Applicants	Users that have applied to join to a certain organization	Array of AccountID	Automatic
Created	The date when the organization was created	DateTime, Block	Automatic
LastUpdated	The date when the organization had an update	DateTime, Block	Automatic
Properties	Custom collection of properties that can be added.	An array of Objects	Manual, Optional

Events

Substrate issues Events for every blockchain Interaction. Most events are related to AccountID, but some events might be trivial.

We have to enable a process that can handle events and process them as notifications, error messages, etc.

Make List of Substrate Events-

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Software Design

High-Level Architecture

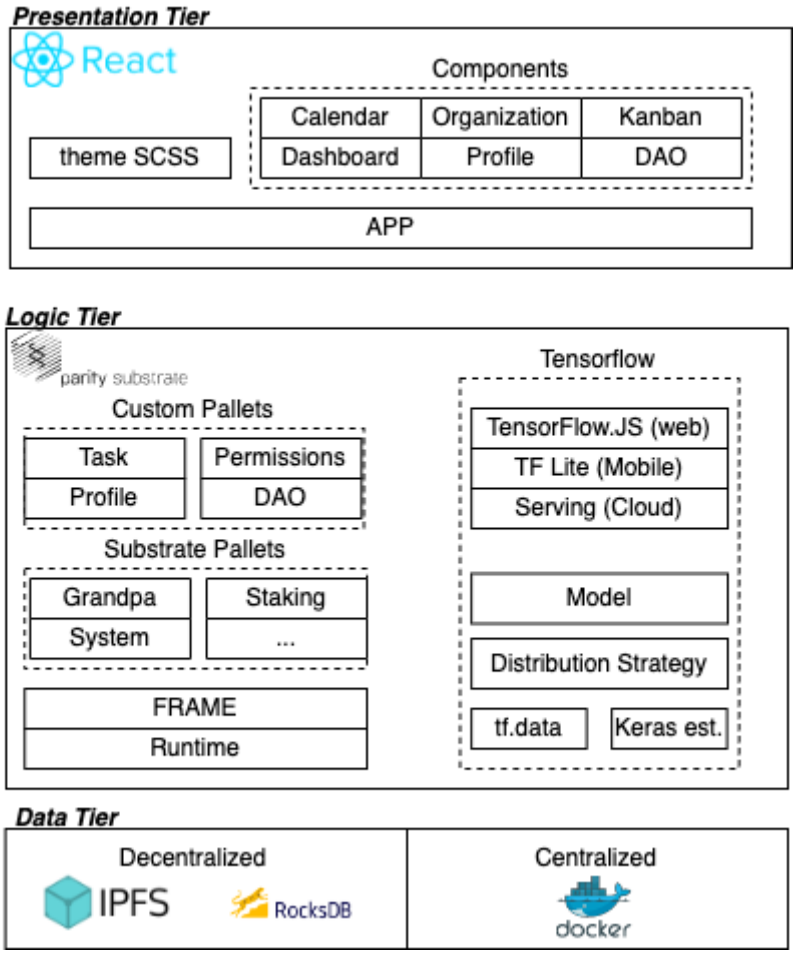

Figure 2. High-Level Architecture of the Solution

Technical Constraints

The application inherits functionality and constraints from the Substrate framework, React, Polkdadot JS, and other software applications that use internally.

Substrate

- Configurable block time (6 seconds)
- Configurable Genesis Configuration

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- Performance limitation on the amount of data to be stored on-chain.
- Communication through Web-Socket to distributed Nodes.

React

- Semantic-UI React design components for reusability

Tensorflow

- Centralized Server Architecture
- Real-time Recommendation system

PolkadotJS

- Encode/Decode for Rust types
- Keyring
- Other dependencies

Quality Attributes

Quality Attribute	Sub-attribute	Description
Security	Direct communication	Operations have to be submitted directly to the blockchain nodes
	SSL, TLS, WSS	All communication happens through Secure Transport Layer
	Wallet	The user accounts are injected through Polkadot JS web-addon. This delegates the security to a secure external tool.
Usability	User-friendliness	The web app should provide convenient, non-technical UI & UX
	Client-side validations	The web app should validate operations before sending them for signing/to the blockchain (e.g. negative numbers for deadline)
	Human-readable errors	The web app should provide any errors/warnings in non-technical explanation to the user

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	User interface aesthetics	The UI elements (shapes, font, colors, sizes) should align with each other to provide a pleasing and satisfying experience for a user
	Shimmering for the data loading	During the data loading, there should be placeholders that represent a preview of the content to be loaded
	Known terminology	The web app will have similar terminology as other web-based projects.
	Accessibility, language	The web app should be available to be used in different languages & region support (e.g. locale currency format)
	Accessibility, visual impairment	Large font size-mode
Performance	Speed	The web application should be able to process information fast by making API calls through secure web socket
	Optimized networking	API calls should be focused on specific features, avoiding generalized calls containing data that is not going to be used
Reliability	100 % uptime	The web application should be available at all times
	Fault tolerance	The app code should be developed & tested to avoid crashes
	Recoverability	If operation failed the web app should provide an opportunity to re-send the operation again, without a need to re-construct & re-sign everything from scratch.
	Data source fallback	The web app should handle faulty/error responses from 3rd

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		party services
Updatability	Deployment	The Deployment of the application should be automated and should be straightforward.
	Runtime updates	The web app should be able to fetch & adapt to runtime updates
Modifiability	Modularity	Adding new functionality (e.g. features) to the app should be convenient.
Installability	Browser agnostic	The web app should be available on all major web browsers.

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User Interface Design

Prototype

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Begin your new adventure!

Sign up

Name

John Doe

E-MAIL

JohnDoe@gmail.com

Password

• • • • • •

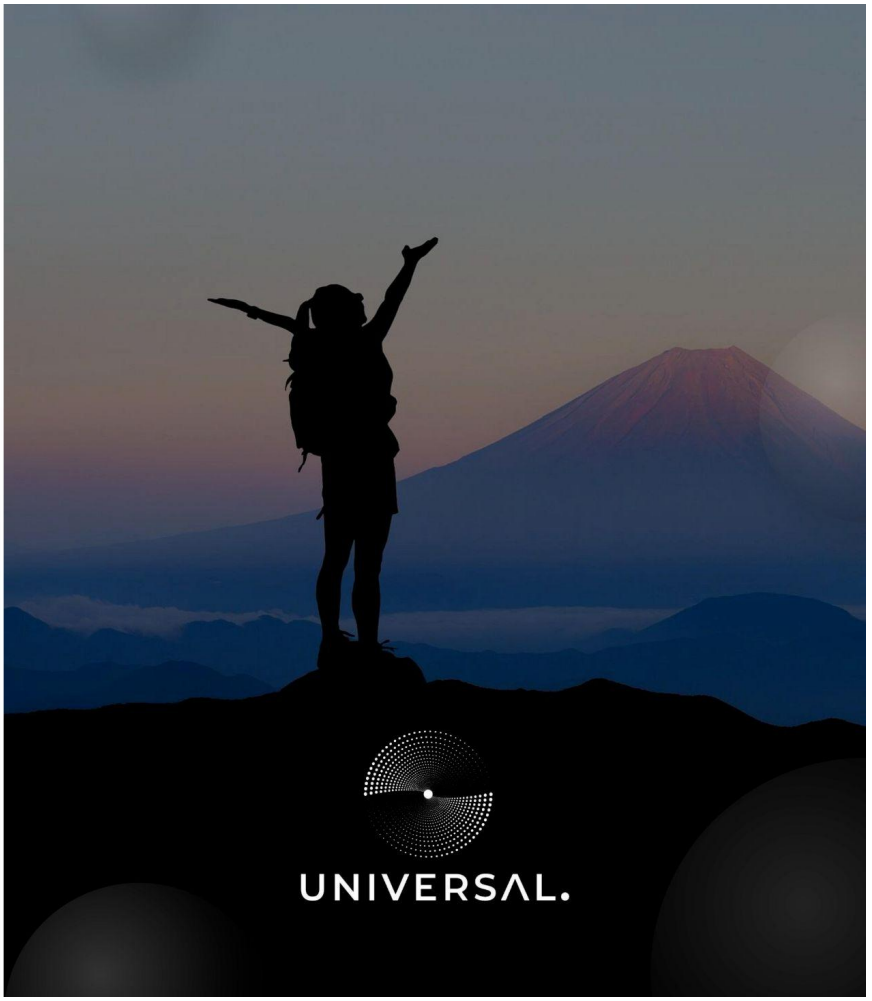
Reoeat Password

• • • • • •

Remember me

Sign up

Already have an account? Sign in.



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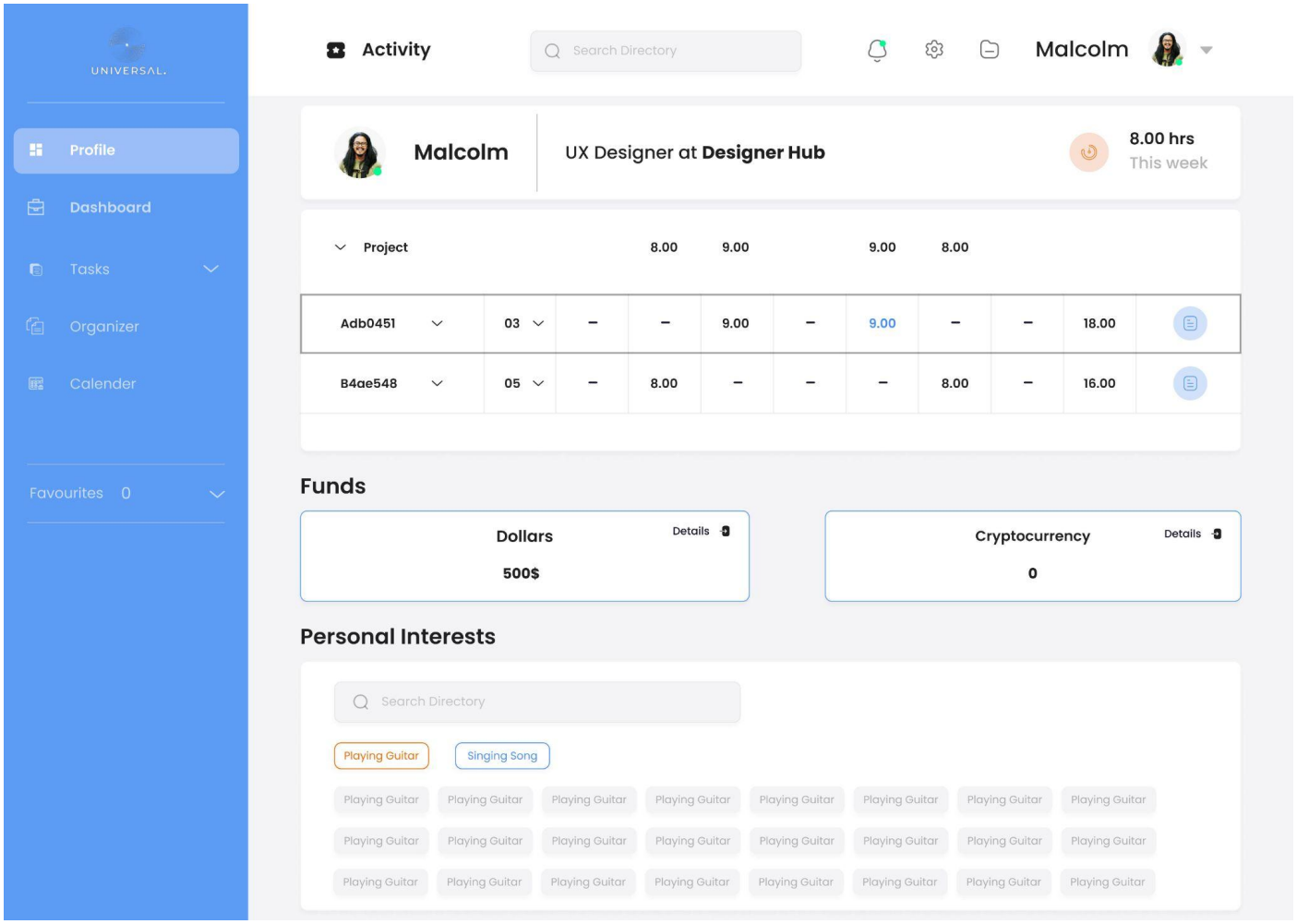

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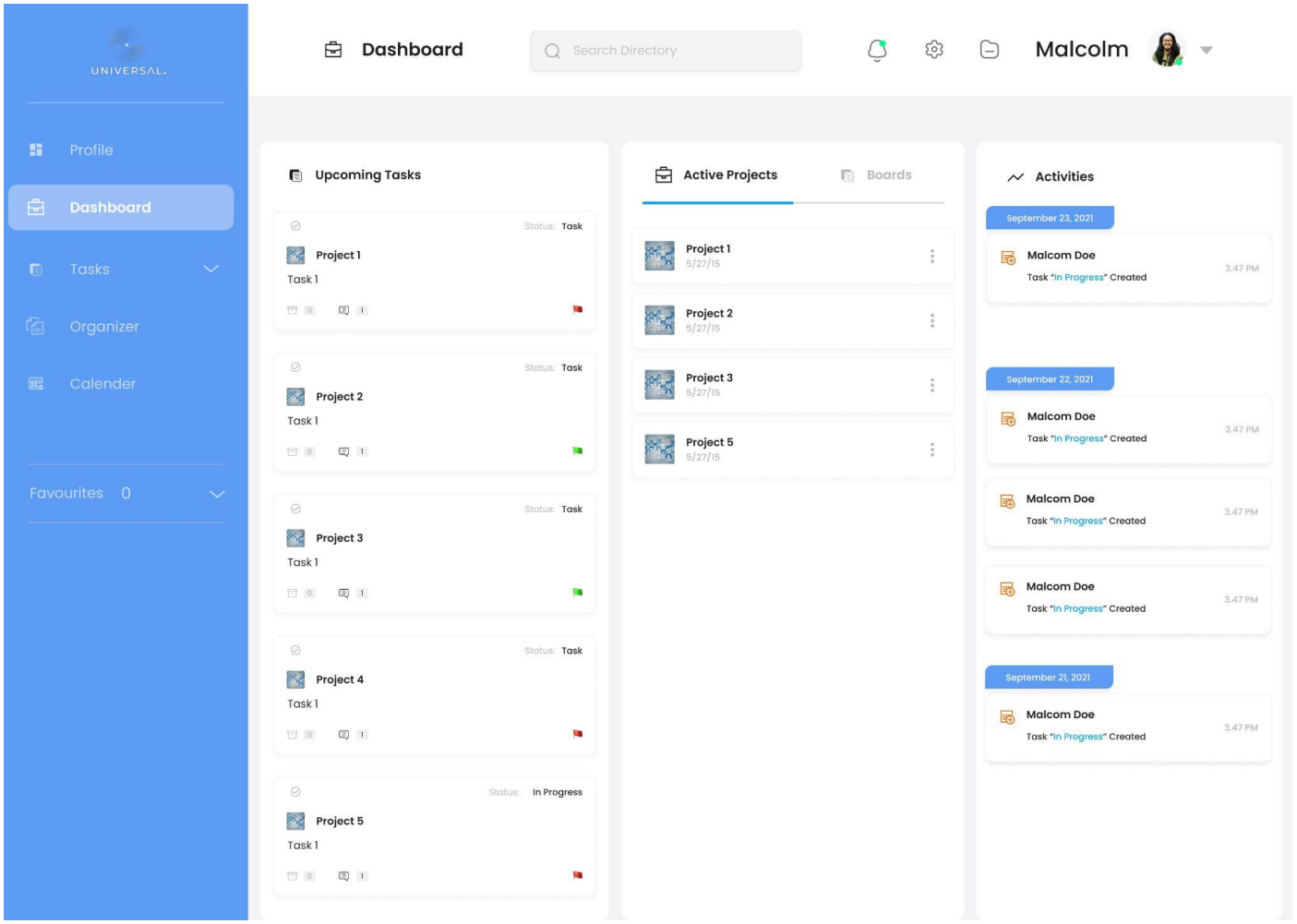

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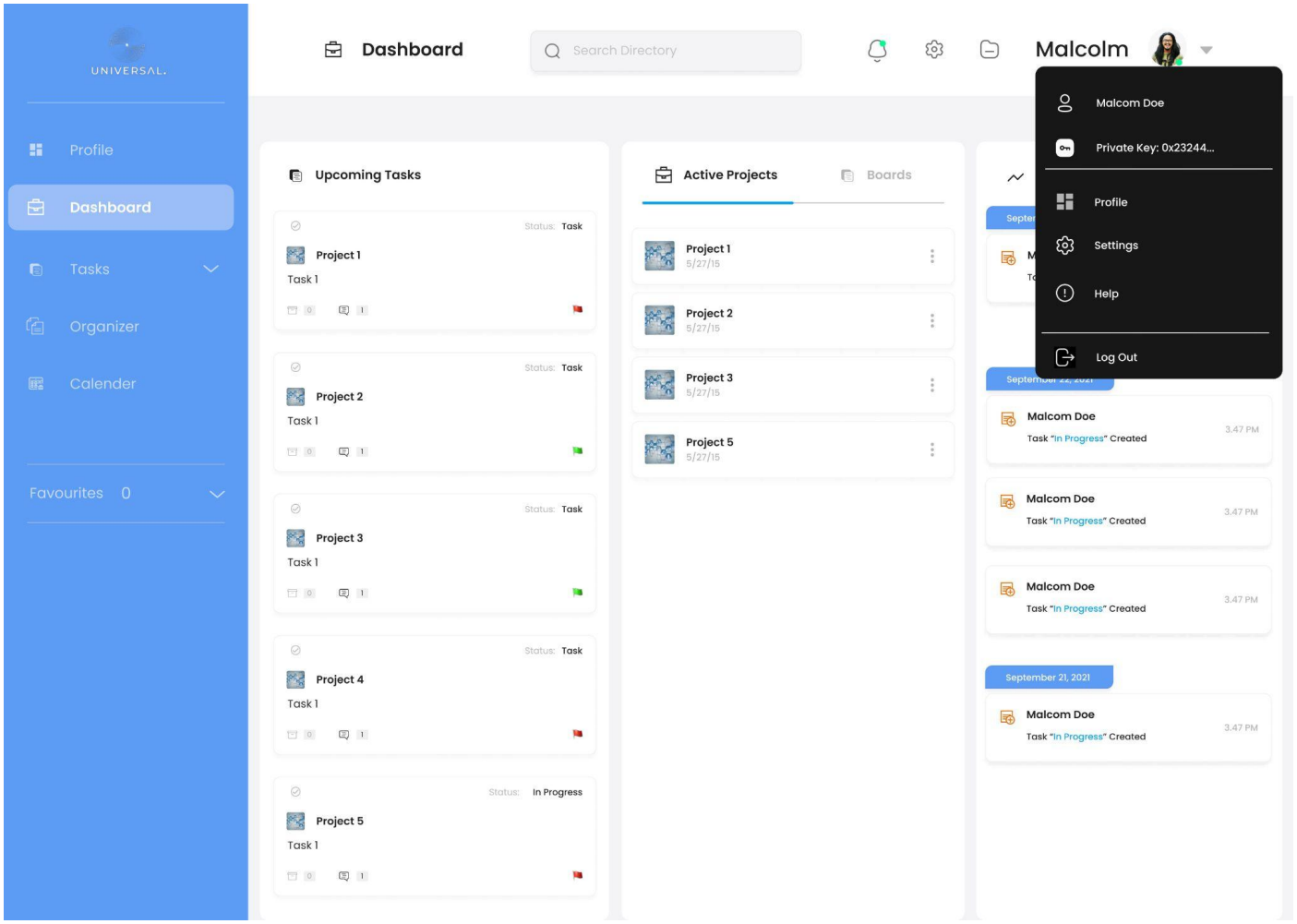

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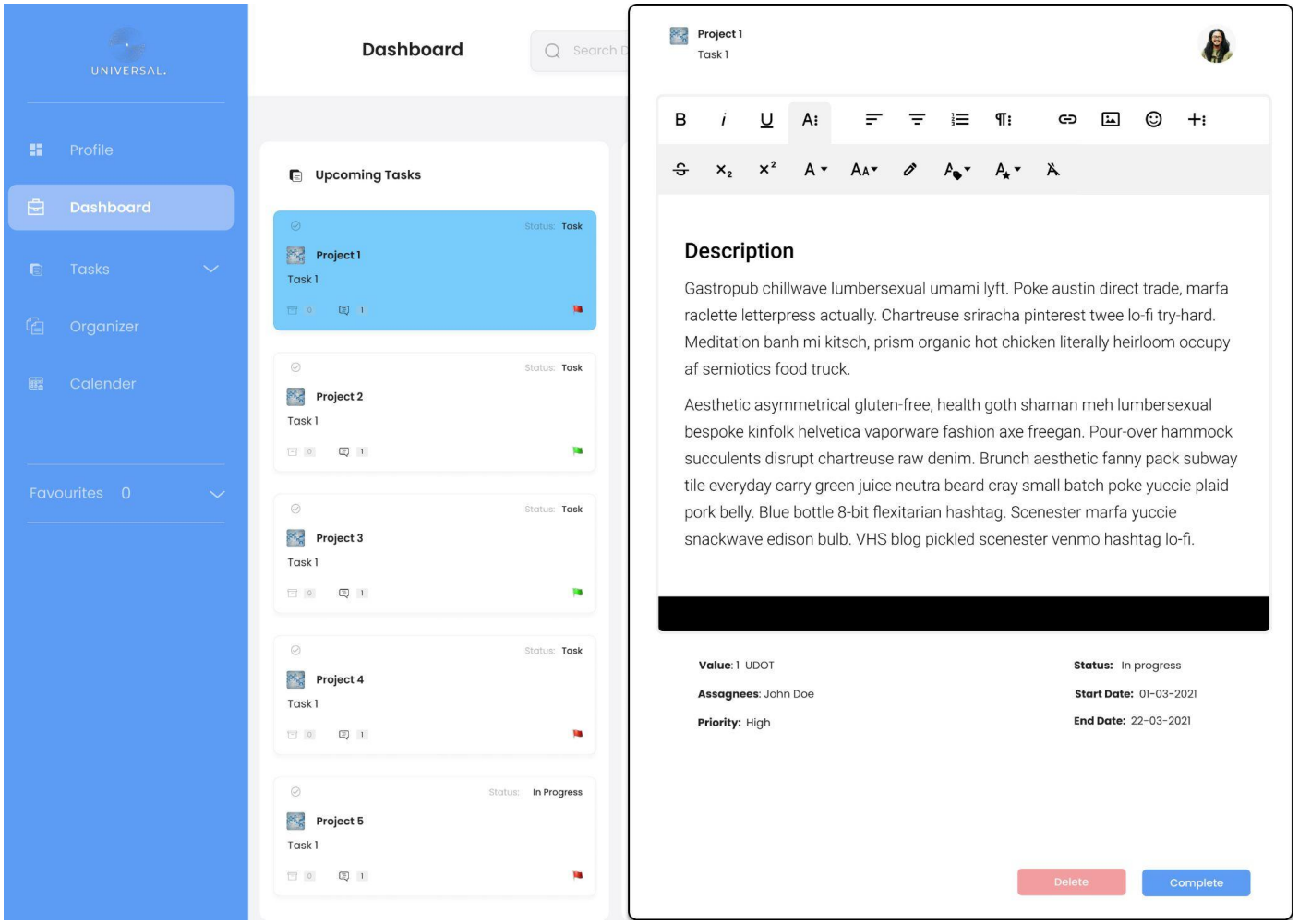

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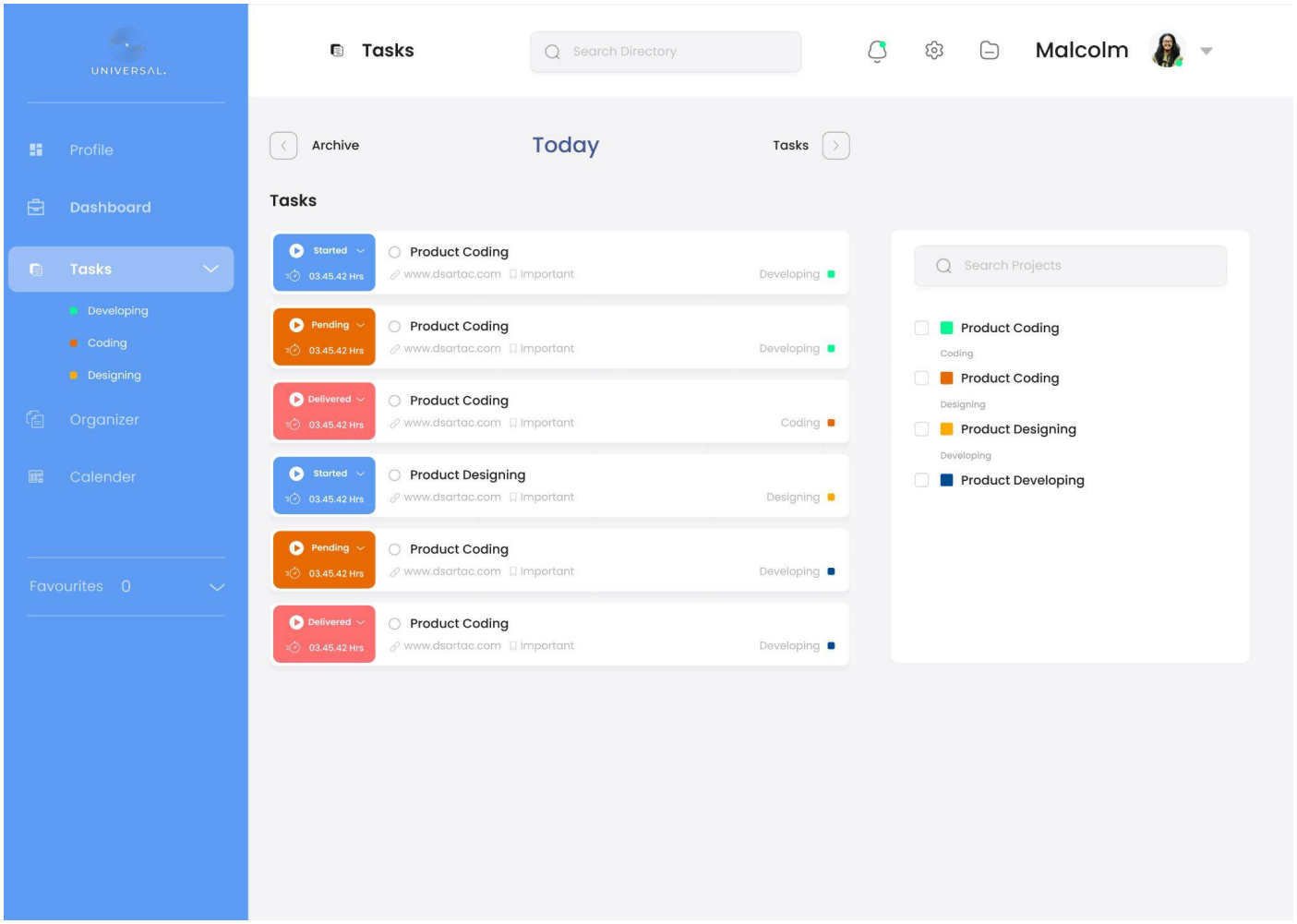

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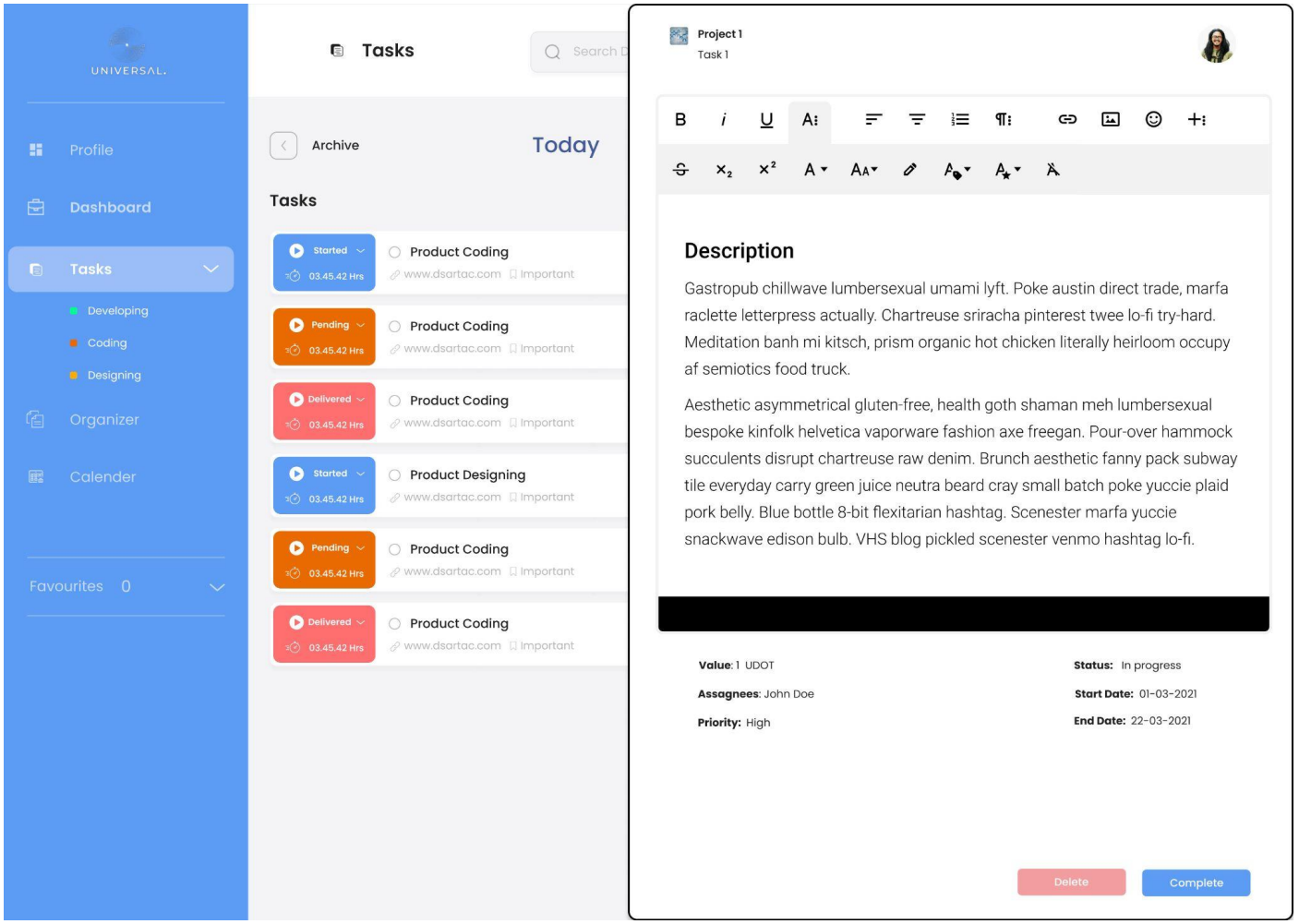

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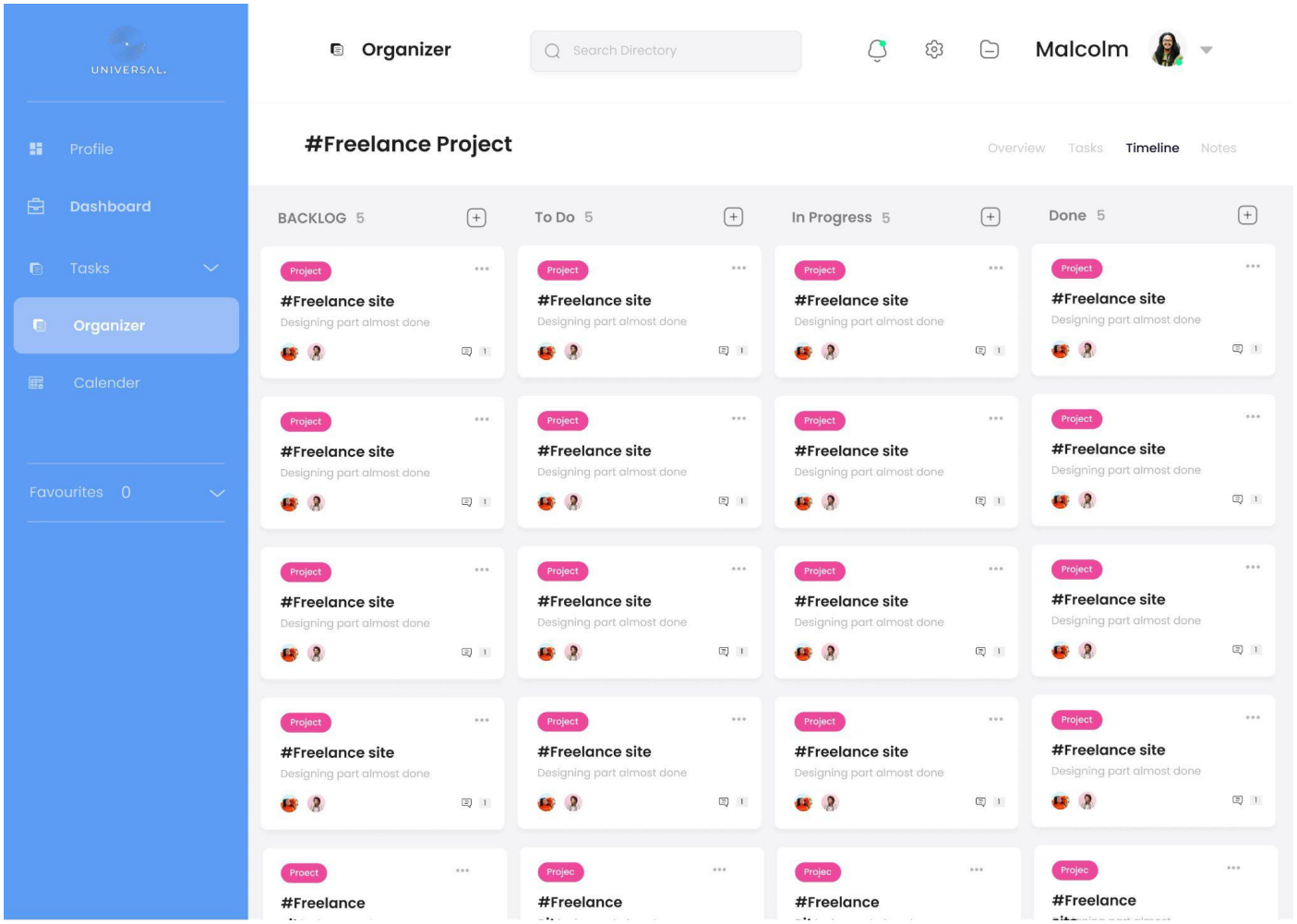

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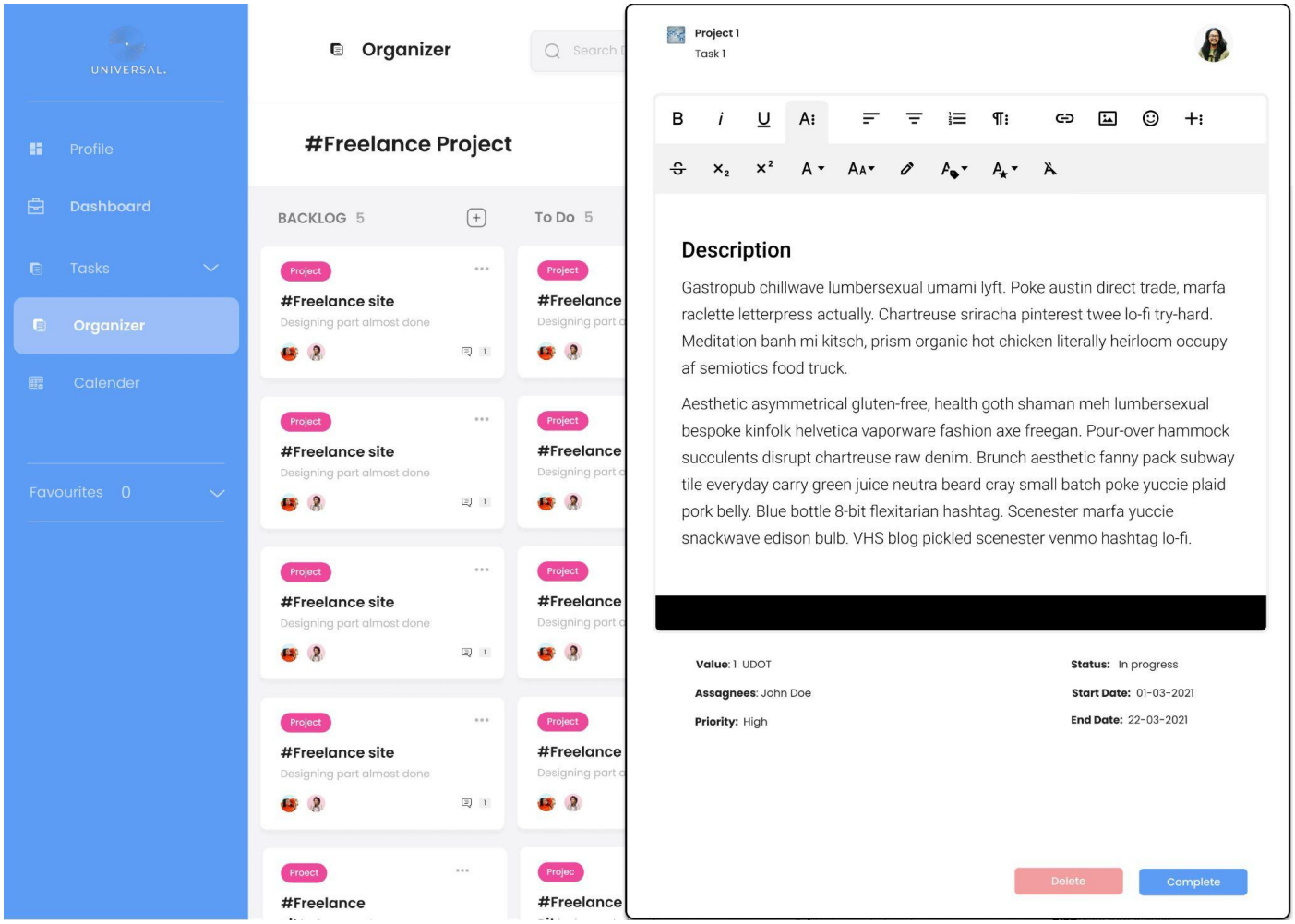

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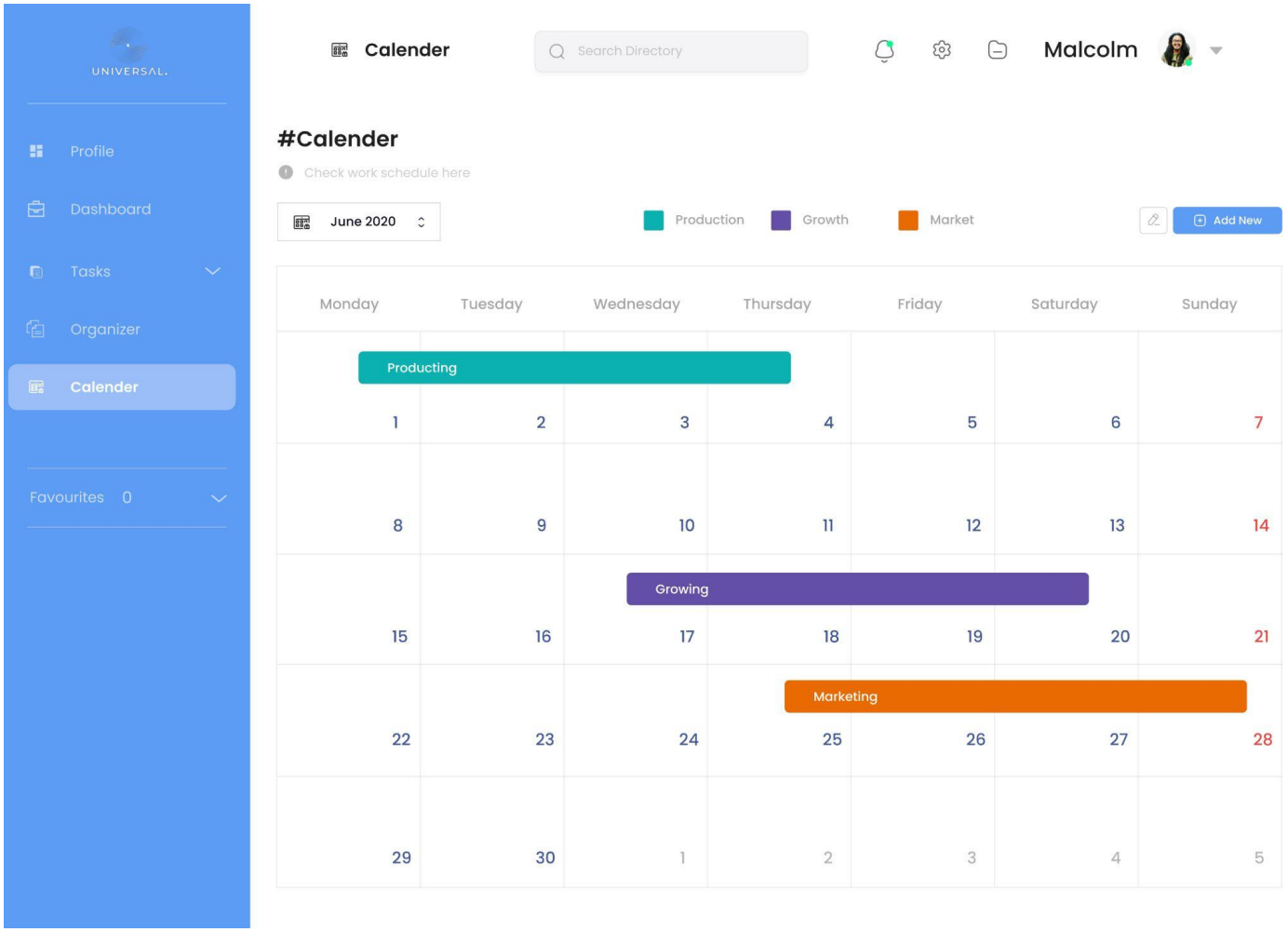

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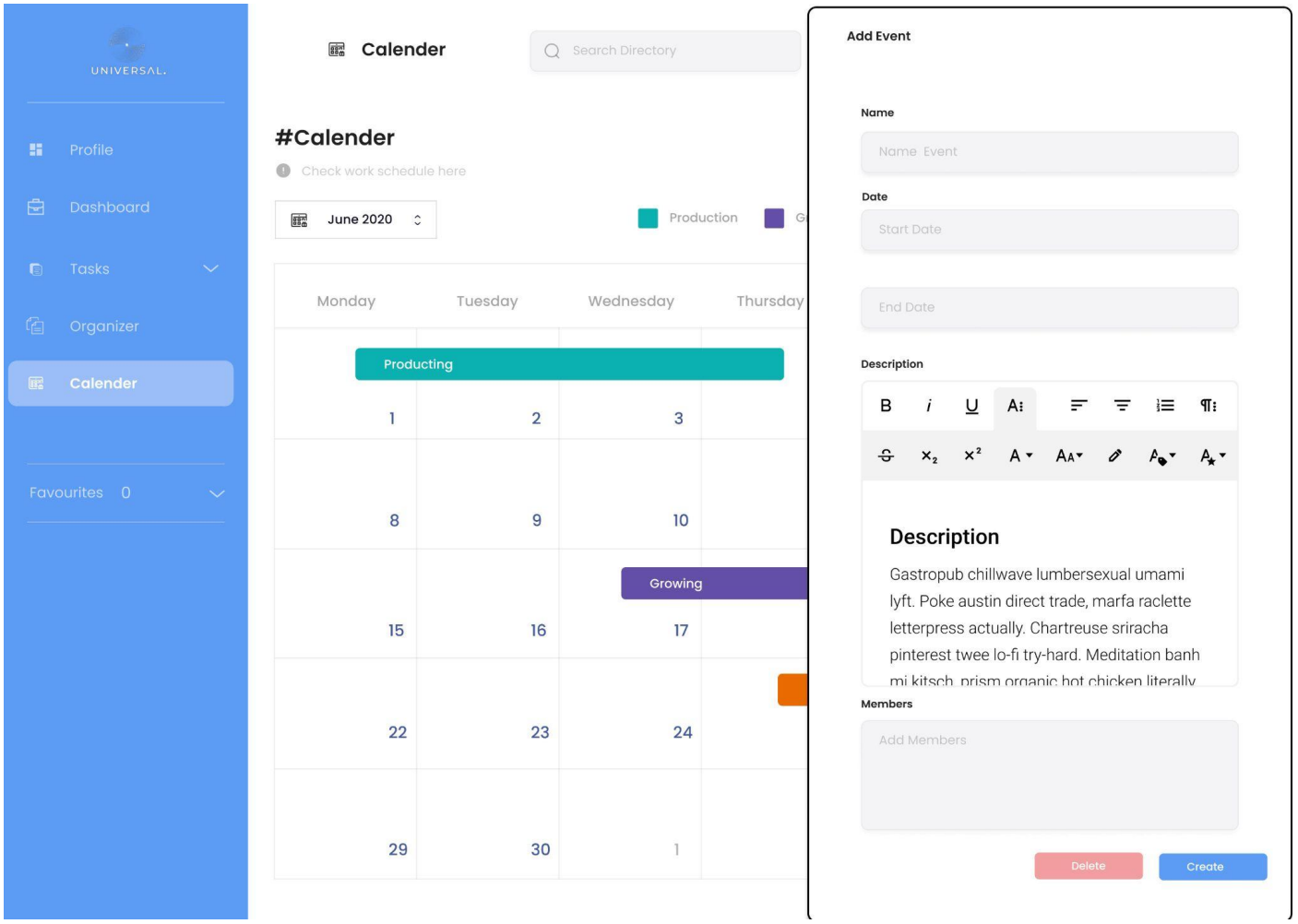

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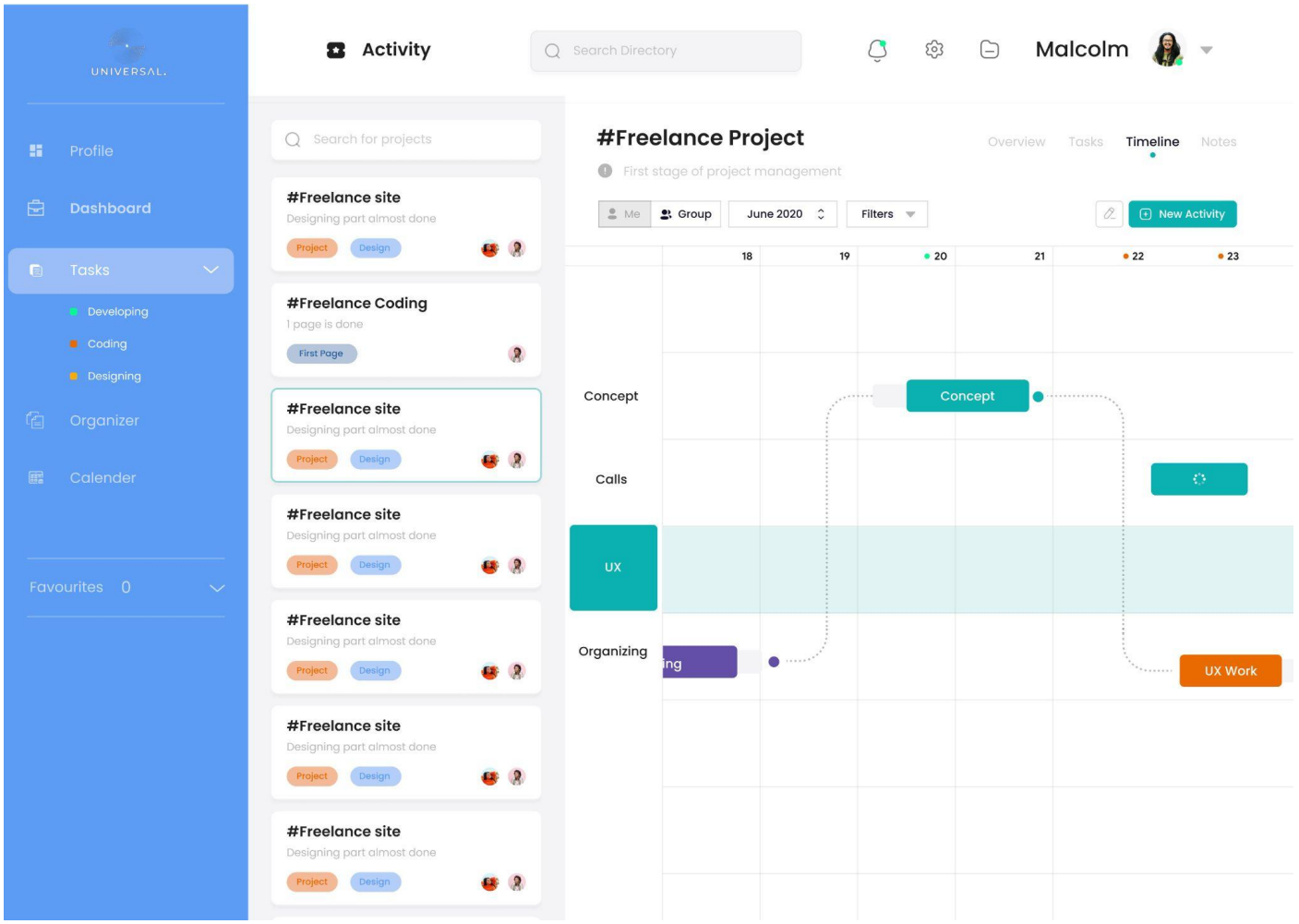

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Bold

Light — (Border)

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