

SOEN 490 - Capstone Software Engineering Design Project
Version 1

Lock&Learn Software Product Vision

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Software Product Vision - Lock & Learn

1. Introduction

The purpose of this document is to collect, analyze, and define high-level needs and features of Lock & Learn. It focuses on the capabilities needed by the stakeholders, and the target users, and **why** these needs exist. The details of how Lock & Learn fulfills these needs are detailed in the use-case and supplementary specifications.

1.1. References

Family link from Google - Family Safety & Parental Control Tools. Family Link from Google - Family Safety & Parental Control Tools. (n.d.-a).

<https://families.google/familylink/>

Google. (n.d.). *Stay on Task*. Google.

https://chrome.google.com/webstore/detail/stay-on-task/lamjjbgpfmngkknajabeoncednnlgi_ao

Freedom.to. (n.d.). *Internet, app and website blocker*. Freedom. <https://freedom.to/>

2. Positioning

1.1. Problem Statement

The problem of	Difficulty in controlling the screen time of children and creating a healthy balance between education and digital entertainment.
affects	Parents and Children
the impact of which is	Children spend more time on digital entertainment and less time focusing on their studies leading to worried parents.
a successful solution would be	Creation of an application installed on parents' and children's cellular devices to manage screen time, and lock the children's application until they have completed the educational material.

1.2. Product Position Statement

For	Parents and Instructors
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Who	Parents want to ensure a healthy balance of education and entertainment and instructors who want to profit off the material they create
Lock & Learn	is a software application product
That	allows parents to control how their children spend their time on their phone.
Unlike	FamilyLink
Our product	Lock & Learn stands out by having a mechanism that unlocks the application after the exercises have been completed, a direct and engaging integration of learning, and a balanced approach of screen time management and education.

3. Stakeholder and User Descriptions

3.1. Stakeholder Summary

Name	Description	Responsibilities
Dr. Ali Akgunduz	Dr. Ali is a Associate Dean in Concordia University who want to create an application idea that he has had for a while and take it into fruition with our team	<ul style="list-style-type: none"> • Give features to implement • approve stories • Monitors the project's progress

3.2. User Summary

Name	Description	Responsibilities	Stakeholder
Parents	Control activity of their children on their phone.	<ul style="list-style-type: none"> • Set studying schedule for their children • Buys material from instructors that caters to their children's academic need 	self-represented

Children	People who will use the application to study.	<ul style="list-style-type: none"> Study and complete quizzes in the app 	self-represented
Instructors	Will add study material and quizzes to be up for purchase.	<ul style="list-style-type: none"> Sell studying and quiz material 	self-represented

3.3. User Environment

- Parents will require a browser-enabled device or wifi connectivity on their phone to set study schedules and preferences for their children, along with the mobile app for notifications.
- Instructors will use a browser-enabled device or wifi connectivity to their phone to input study materials and manage user roles within the web application.
- Students will use both the web and mobile app to access study materials and receive notifications.
- The app will be available on the web and as a mobile application for iOS and Android platforms.
- The app will be integrated with authentication services and also with secure payment services.

3.4. Key Stakeholder or User Needs

Need	Priority	Concerns	Current Solution	Proposed Solutions
Locking device	High	Phone locked forever = Usability	none	Create an override code that the main user is aware of so then can override the lock at any time they deem necessary.
Controlling child user study preferences	High	do not want children to change their study schedules	none	Clear distinction in the app's features depending on if it is a children or a parent using the application
Selling material	High	security issue	none	Secure payment protocols that ensure encrypted transactions

				and payment information storage
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3.5. Alternatives and Competition

Competitor 1: Family Link (<https://families.google/familylink/>)

Family Link is an application developed by Google that offers features such as Screen Time Management, App Access Restrictions, Activity Monitoring, Remote Lock & Unlock, and Content Filters. Our app still stands out by having a mechanism that unlocks the application after the exercises have been completed, a direct and engaging integration of learning, and a balanced approach of screen time management and education.

Competitor 2: Stay on Task

(<https://chrome.google.com/webstore/detail/stay-on-task/lamjjbgpfmngkknajabeoncednnlgi>)

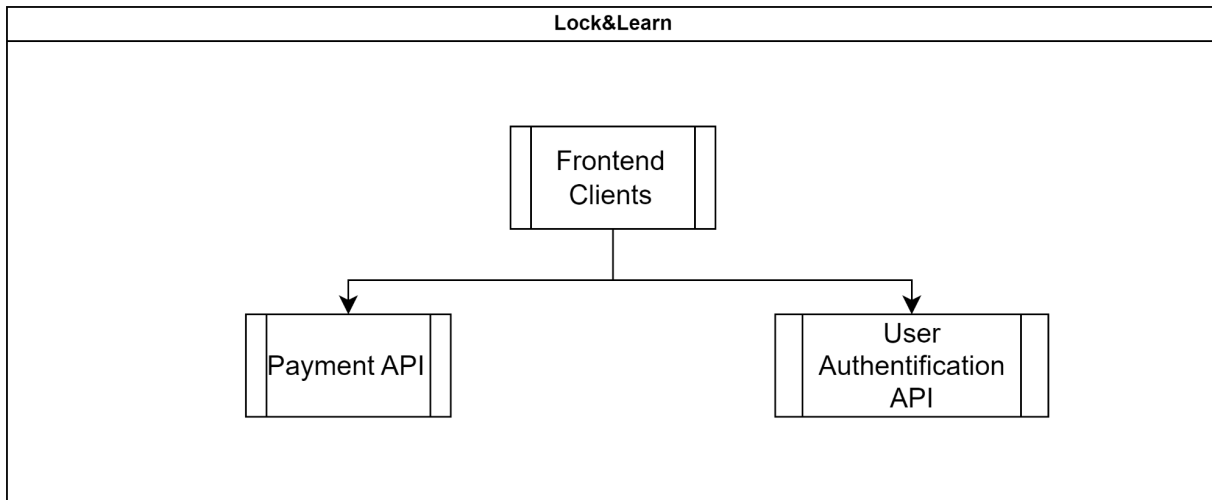
Stay on Task is an application that helps with productivity. It blocks sites that are on users block list and redirects them to their to-do lists until their tasks are done. It's helpful to students to keep away from distractions and remember their goals. It however, lacks in having the learning element we aim to have in our application. Our application will block students from apps on their block list until they complete quizzes to support learning in their desired subject.

Competitor 3: Freedom (<https://freedom.to/>)

Freedom is an application and browser extension that mainly focuses on managing the access to websites and apps during time slots they call "Freedom sessions". Each of these so-called sessions can be customized by the user, whether it's the time of the session, the websites/apps that are permitted to access, or even if the sessions allows for the Internet to be used at all. That being said, we believe that Freedom's discipline-reliant method of restricting access makes it easy to circumvent its benefits, and a product that relies on their users' own ability to have self-restraint. As such, we consider our application to be a step ahead in terms of productivity boost, since the users' restrictions will be set by the parents, and the teaching figures will be assigning lessons.

4. Product Overview

4.1. Product Perspective



Our product, while primarily designed as a self-contained study management application for students, parents, and instructors, does have a necessary dependency on payment services for in-app transactions. This payment integration is essential for buying the study material for kids. While the app remains functional for basic study management tasks, the material itself is contingent on the payment service, introducing a level of interdependence in this aspect of the product's functionality. While it may also integrate with external services like calendar apps, cloud storage, and notification services, these integrations enhance its functionality without being integral to its core operation.

4.2. Assumptions and Dependencies

Dependencies:

- User feedback and preferences may impact feature prioritization and design choices.
- Changes in technology may enable new features or require updates to existing ones.
- Changes in regulations related to education or data privacy may necessitate adjustments to features and data handling.
- Features may need to evolve to stay competitive with other study management apps in the market.
- Available resources, such as development time and budget, can influence feature implementation and timelines.
- The way users engage with the app may shape feature enhancements or changes.

Assumptions:

- The assumption that the app will be available on mobile platforms relies on the continued availability and support of these platforms.
- The Vision document assumes stable internet connectivity for users. Changes in this assumption may require offline functionality.

- The assumption that a payment gateway will be available is critical for features to work as intended. Any issues with payment gateway availability or changes in payment processing may impact the Vision.
- The Vision assumes adherence to existing data privacy and security regulations. Changes in these regulations could require modifications to how user data is handled.
- The document assumes a certain level of user engagement. If user engagement patterns change significantly, it may impact feature priorities.
- The level of instructor involvement is assumed to be a part of the app's functionality. Changes in the role of instructors may affect feature development.
- The Vision assumes parents' active participation in setting study schedules. If this assumption changes, it may affect feature emphasis.
- The assumption that instructors will moderate content is crucial. Any shift in this assumption may require changes to content handling features.
- The Vision assumes a certain level of scalability for user growth. If user numbers significantly exceed expectations, scalability features may need adjustments.

5. Product Features

- **User Authentication & Profiles**
 - Parents and teachers can create and manage their own profile with personal information, and authentication credentials.
 - Priority: HIGH
- **Marketplace for education content**
 - Parents can browse and purchase the education content posted by instructors for their children
 - Priority: HIGH
- **Screen time control**
 - Parents can schedule study sessions, lock and control their children's access to their phone.
 - Priority: HIGH
- **Progress Tracking**
 - Parents can track the progress of their children from a dashboard and from a quick glance see how well they are doing in different subjects.
 - Priority: LOW
- **Payment Integration**
 - Secure payment processing for the purchase of educational content sold on the marketplace.
 - Priority: HIGH
- **Content Management System for Instructors**
 - Instructors can upload and manage the content they upload to the marketplace. They can customize the format they want their quizzes to take form in.
 - Priority: MEDIUM
- **Privacy & Security**

- Robust security measures, like data encryption and user authentication to protect user data and privacy.
- Priority: MEDIUM

6. Other Product Requirements

Environmental Requirements:

- Good Internet Connectivity: A reliable and high-speed internet connection is essential, especially if the app relies on online features or content.
- Adequate Power Supply: Ensure that devices are adequately charged or connected to a power source to prevent interruptions during study sessions.

Hardware requirements:

- Operating System: Windows 10 or macOS 10.14+.
- Processor: Intel Core i3 or equivalent.
- RAM: 4GB or more.
- Storage: 100MB free space.
- iOS 12+ or Android 8.0+
- 1GB RAM or more
- Internet connection for updates and cloud syncing.

Software requirements:

- at most 1 second response time
- cross-platform compatibility, IOS & Android devices
- User Authentication: capable of handling a minimum of 10 000 concurrent logins
- Screen time control: parents should be able to lock a child's device
- Payment Integration: Payment gateway transactions must be secure, processed in real-time, and completed within 5 seconds.

Design constraints:

- target audience
- performance
- scalability

External constraints:

- budget
- deadlines
- technology

Priority of other product requirements: we want to focus primarily Distraction-blocking features, study session customization, progress tracking and analytics.