SIMPLESKILL

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Preface

Simpleskill is an open-source, non-profit, self-learning platform where you can learn new skills. Learning new topics requires commitment and a lot of time and strong willpower. Simpleskill's philosophy is to make it easier to learn topics from various fields, by cleverly dividing these topics into their tiniest possible components (simpleskills) which we believe when presented right, would encourage people to sit down and learn.

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1. Introduction

"A journey of a thousand miles begins with a single step" is one of the common sayings that we all grew up with starting from that point and believing in our philosophy of dividing problems to its finest possible components Simpleskill started.

1.0. What is Simpleskill?

Simpleskill is an open-source, general-purpose, self-learning platform for people who like to make productive-use of their free time. Whether you're looking to learn new topics from various fields, or take a specific skill of yours to the next level, Simpleskill is going to help you in that by dividing each skill into tiny components. Each component contains an organized variety of materials to ensure easy and fully understanding. This tiny component which we refer as a ***simpleskill***, is the second-to smallest unit in our system, which comprises a larger skill (or topic! A simpleskill can also be a theoretical concept). Learning 'how to prepare vegetables with a knife' is a simpleskill of 'cooking'. The definition is loose and varies depending on the skill or topic at hand. Simpleskills take ~30 minutes to complete depending on the topic.

1.1. How does Simpleskill categorize fields of knowledge?

Adapting an already-existing model feels unsatisfying to us, and based on inspecting some of them, it becomes clear to us that none of them is perfect (which we don't expect or believe to be possible anyways), but more importantly, none of them are an exact fit to our philosophy. That being said, since Simpleskills is only a demo project as of right now, the first option is unfortunately infeasible due to monetary and time constraints; therefore we are forced to walk the second path and explore our options. Instead of following one of the many models out there that take themselves too seriously, despite being abhorrently flawed, we've decided to follow a fun, simplistic, reductive, model, that is both comprehensive to the best of its ability, yet doesn't take itself too seriously (flaw self-aware). The aforementioned model is a custom model (hastily put together by us) inspired by Dominic Walliman's ['The Donut of Knowledge'](https://dominicwalliman.com/post/178257063655/the-donut-of-knowledge-summarises-all-of-the)[1] (not quite accurate but certainly clever and entertaining).

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[1] https://dominicwalliman.com/post/178257063655/the-donut-of-knowledge-summarises-all-of-the

1.2. Simpleskill's philosophy

The philosophy of Simpleskill consists of a set of principles which were kept in mind by everyone involved during every phase of the development of Simpleskill:

1.2.1. Principle 1: the length of the road should be left undefined

To be put in the simplest form possible: given an abstract field of knowledge K: the road to being an expert in K is hard; you first need to decide how much you already know about K, then you need to do research as to what there is to learn about K, and from that, what you want to learn, how, and where. Then finally, most of the time, you'll find that learning K is a hard, long process which will take forever.

With that all in mind, we believe that if you're passionate about a certain field but have always had trouble improving your experience in it (theoretical or practical), it's because of the aforementioned tedious, unsatisfying process, which justifies your lack of commitment and laziness;

if you're constantly reminded that it takes 100+ hours to learn something, you won't bother with even the first hour.

1.2.2. Principle 2: gradual, low-effort learning

Learning takes time, but that doesn't have to be explicit, nor exhausting.

If you dedicate just 30 minutes every day to learning something new about a certain topic, you'll be surprised within a year's time as to how much you've learned effortlessly.

1.2.3. Principle 3: entertaining-productivity over entertainment

Learning in some of your free time (which we believe can be made enjoyable) is an investment in your happiness, and your future;

supplementing your free time with productivity through learning will leave you accomplished, satisfied, and clear-minded to enjoy the rest of your free time.

1.2.4. Principle 4: multiple-topical learning

Dedicating all your time to one topic is a direct road to burnout;

if you don't obsess over a specific topic, you'll grow to love and enjoy many different topics, including said specific topic

1.2.5. Principle 5: recommendations

Most people won't seek learning;

you don't know what you may like, and you can't explore all topics. You need an informed entity to recommend new topics to you based on what you're more likely to enjoy learning.

1.2.6. Principle 6: different kinds of learning matter

People don't learn at the same pace, nor through the same way[2].

1.2.7. Principle 7: humbleness and criticism-acceptance

Nothing is perfect or clear-cut when it comes to psychological and philosophical topics;

Simpleskill is an always-changing platform that values user feedback and is open to technical and philosophical criticism.

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[2] https://courses.lumenlearning.com/boundless-psychology/chapter/introduction-to-learning/

2. Glossary

- **Field**: A branch of knowledge or A slice of life skills that you can learn about throughout the system.

- **Simpleskill**: with the first letter capitalized, *Simpleskill* refers to the platform itself.

- **simpleskill**: the second-to smallest unit used to comprise a larger topic. These are what the user applies to, and learns *(collects them).*

- **Milestone**: the smallest unit used to comprise a larger topic. These are used to comprise simpleskills. Each milestone contains learning-material options for the user to learn.

- **Tags**: labels that describes a simpleskill for various usages, such as filtering, retrieving, and recommending simpleskills.

3.User requirements:

3.0. A high-level overview of Simpleskill's services

Based on Simpleskill's [philosophical principles](#)[3], which constitute our philosophy behind creating Simpleskill, ours is a platform that aims to offer the following services:

- A model of fields of knowledge where knowledge is organized and represented as *simpleskills* that you can learn in ~30 minutes, which symbolizes a step towards understanding a given field of knowledge better, and gaining practical (and/or theoretical) experience in it.

- An interactive and entertaining platform which users can join to collect simpleskills relevant to their interests and hobbies in their free time, keeping track of their progress, and steadily becoming more and more experienced in various fields.

- Daily reminders, and rewards (badges, streaks, etc...) (behavioral positive reinforcement[4]) which encourages learning at least one simpleskill every day.

- A learning-materials system with options that cater to, and keep in mind the different paces and types of learners.

- A smart recommendation system that recommends users new simpleskills based on their interests, progress, history, and feedback.

3.1. Functional requirements:

- A home page that explains how the system works .
- variety of topics to be learned through out the system
- The materials have to be from more than one source to ensure the understanding for each topic.
- The user can add his interests in the system and his level in each topic
- The SimpleskillS that appears to the users have to be based on their interests with a

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[3] see section 1.2
[4] https://positivepsychology.com/positive-reinforcement-psychology/

level and an approximate time for learning this Simpleskill
- The progress of the users throughout each simple skill should be saved.
- the users can mark the materials they finished on each simpleskill
- the users can start more than one simpleskill on the same time

3.2. Non-Functional requirements

- **security:** to prevent sensitive data the system should require users to Login to access applications that store information
- **Usability:** The website's interface has to be user-friendly and easy to use. letting users easily determine what a feature is and what it can do. and the simpleskills are labeled with tags for easy access.
- **Performance:** The website's load time should not be more than one second for users.
- **Reliability:** Users can access their data 98% of the time without failure.
- **Compatibility:** The system should be Highly compatible and typically function well when other applications are running on a device and also allows users who have different operating systems to use the same applications.

4. Design using the UML notation[5]

4.1: Context models:

4.1.1: context diagram:
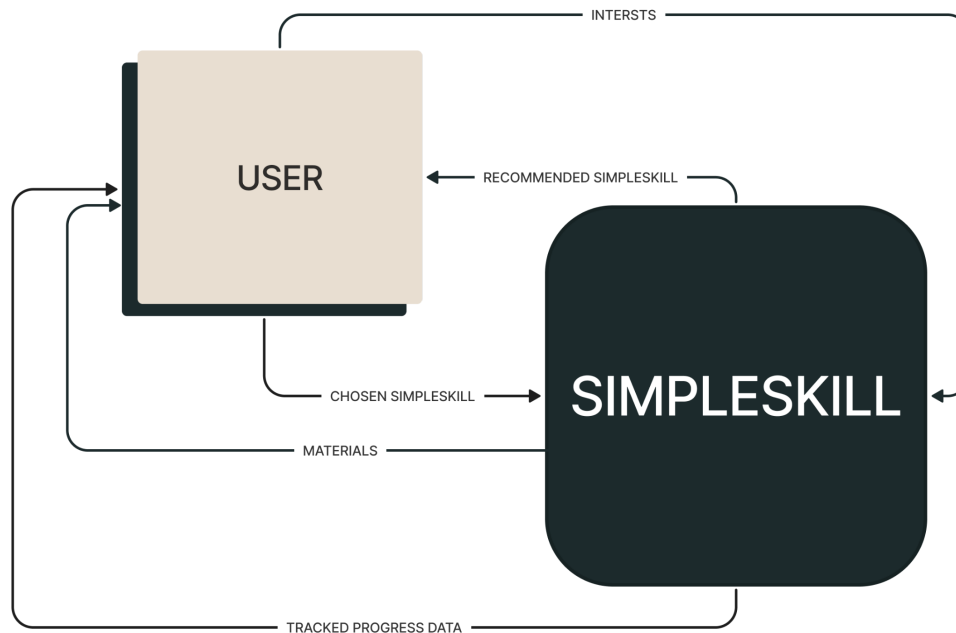
4.1.2: process model:

Simpleskill was built using agile methodologies as it focuses on the people doing the work and how they work together. Solutions evolve through collaboration between self-organizing cross-functional teams utilizing the appropriate practices for the context. which makes this methodology a great choice for our team and Simpleskill.
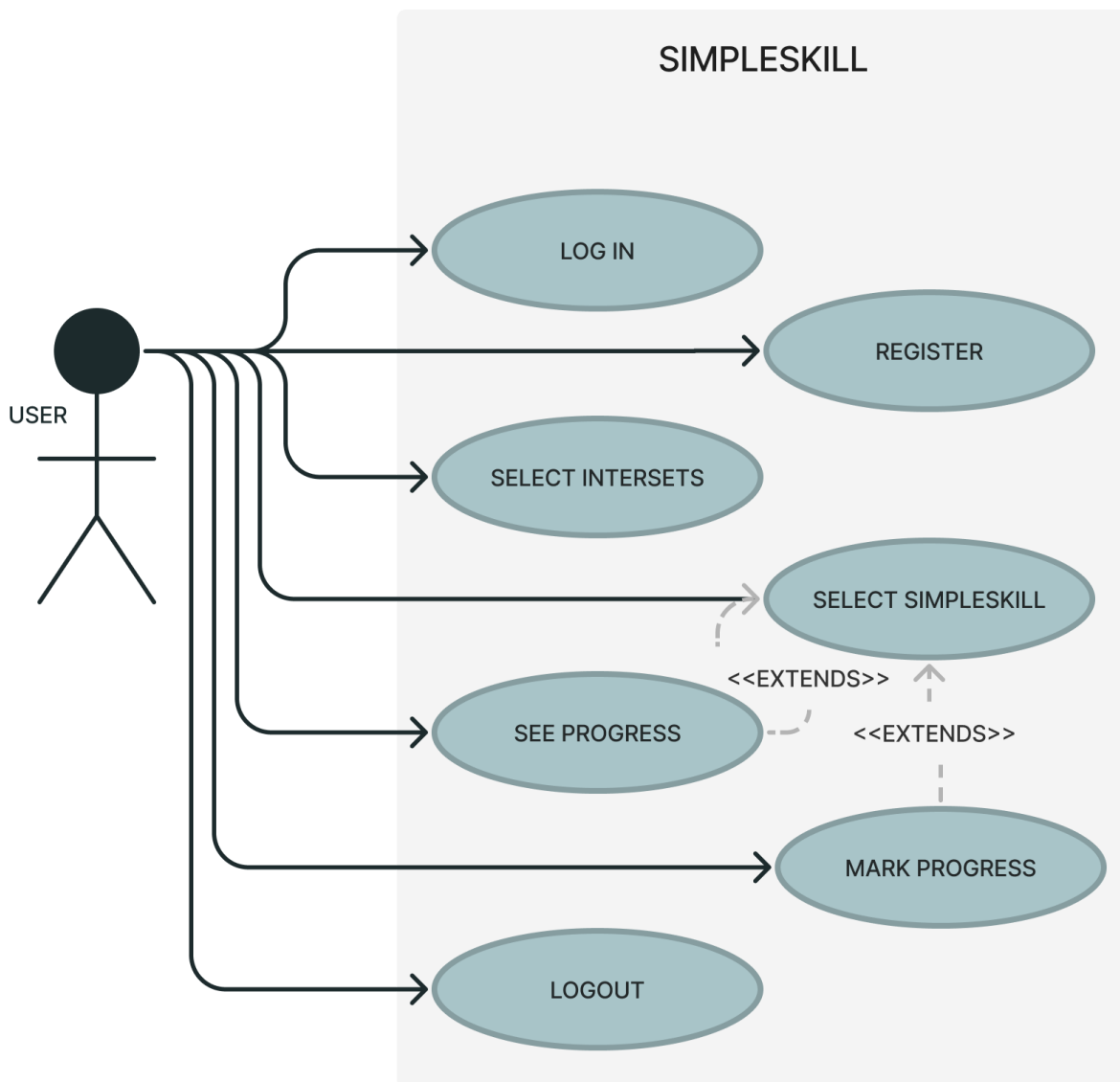
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[5] Design file: https://www.figma.com/file/wqZoDZfoIGcOdJDV8QGiYs/Untitled?node-id=0%3A1

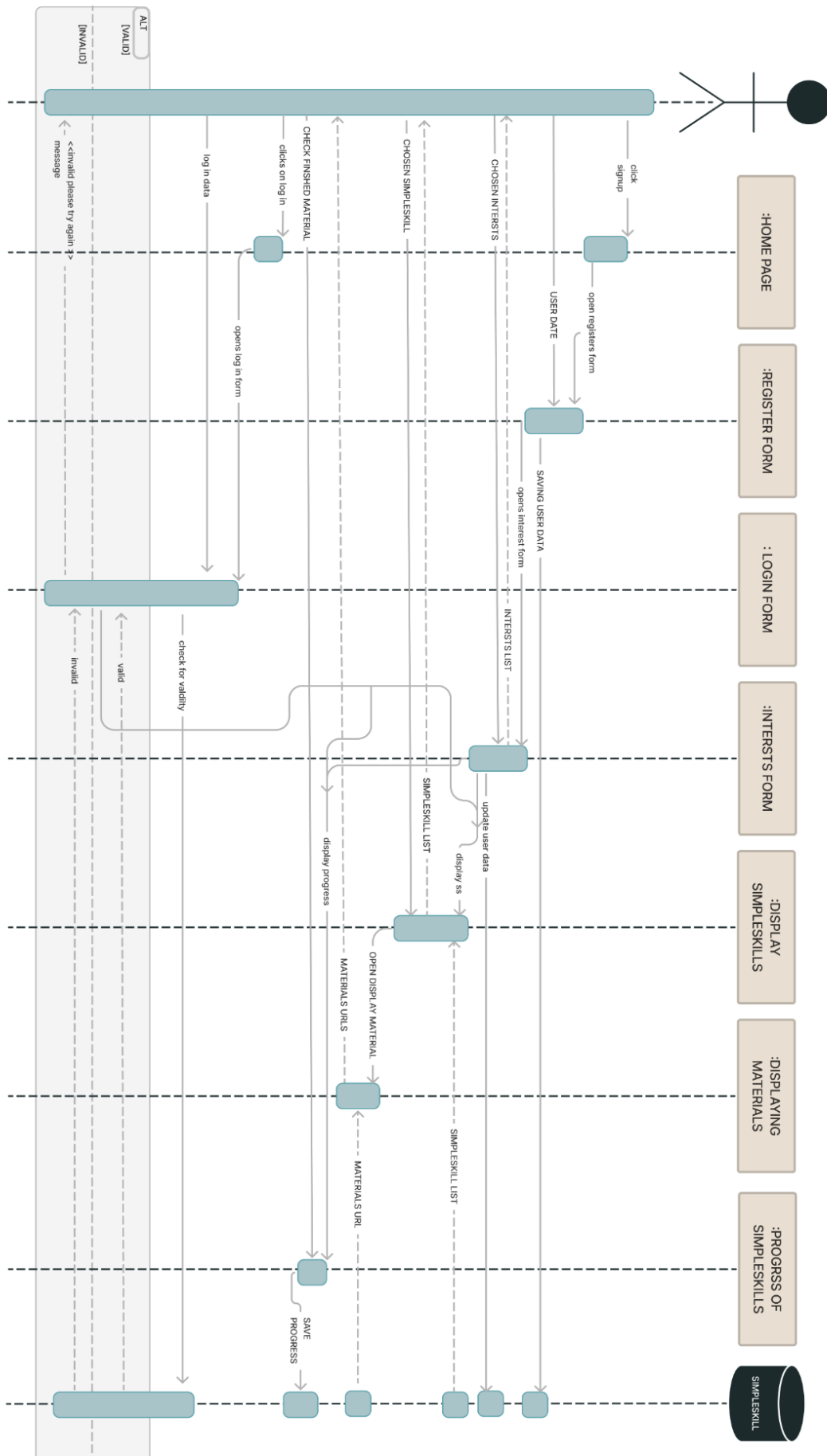The UML activity diagram describing the process of Simpleskill is shown in the next figure:
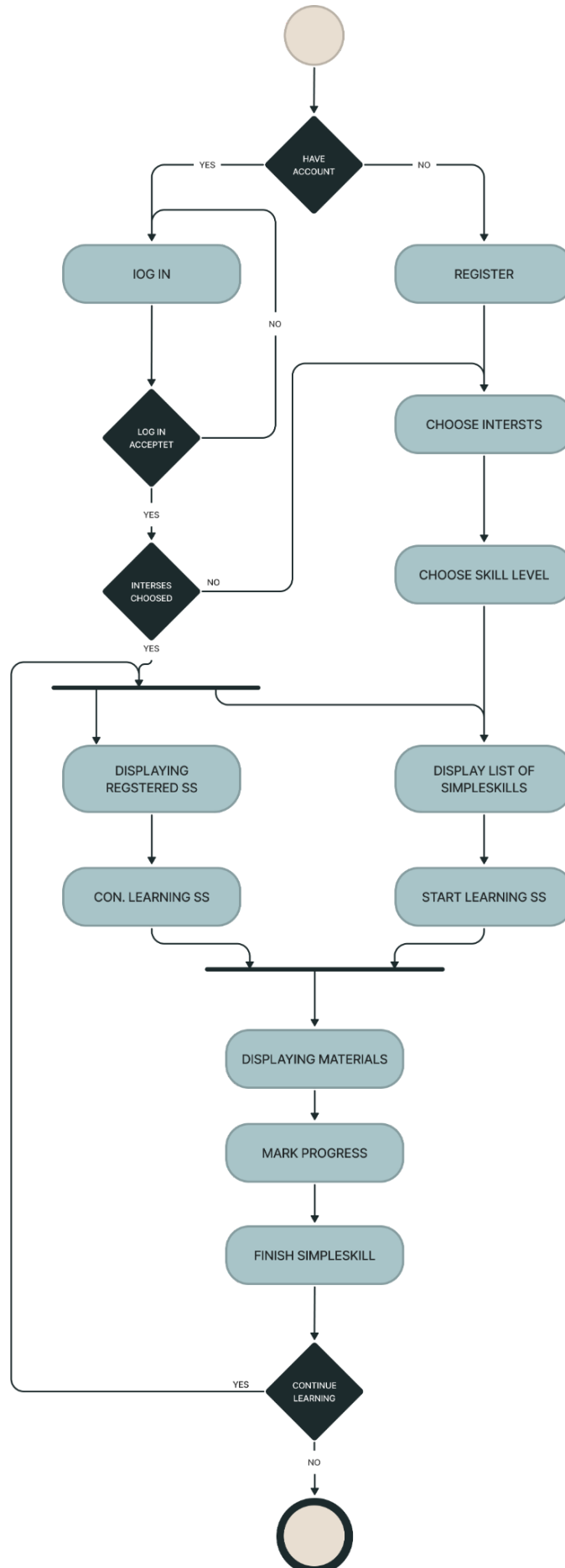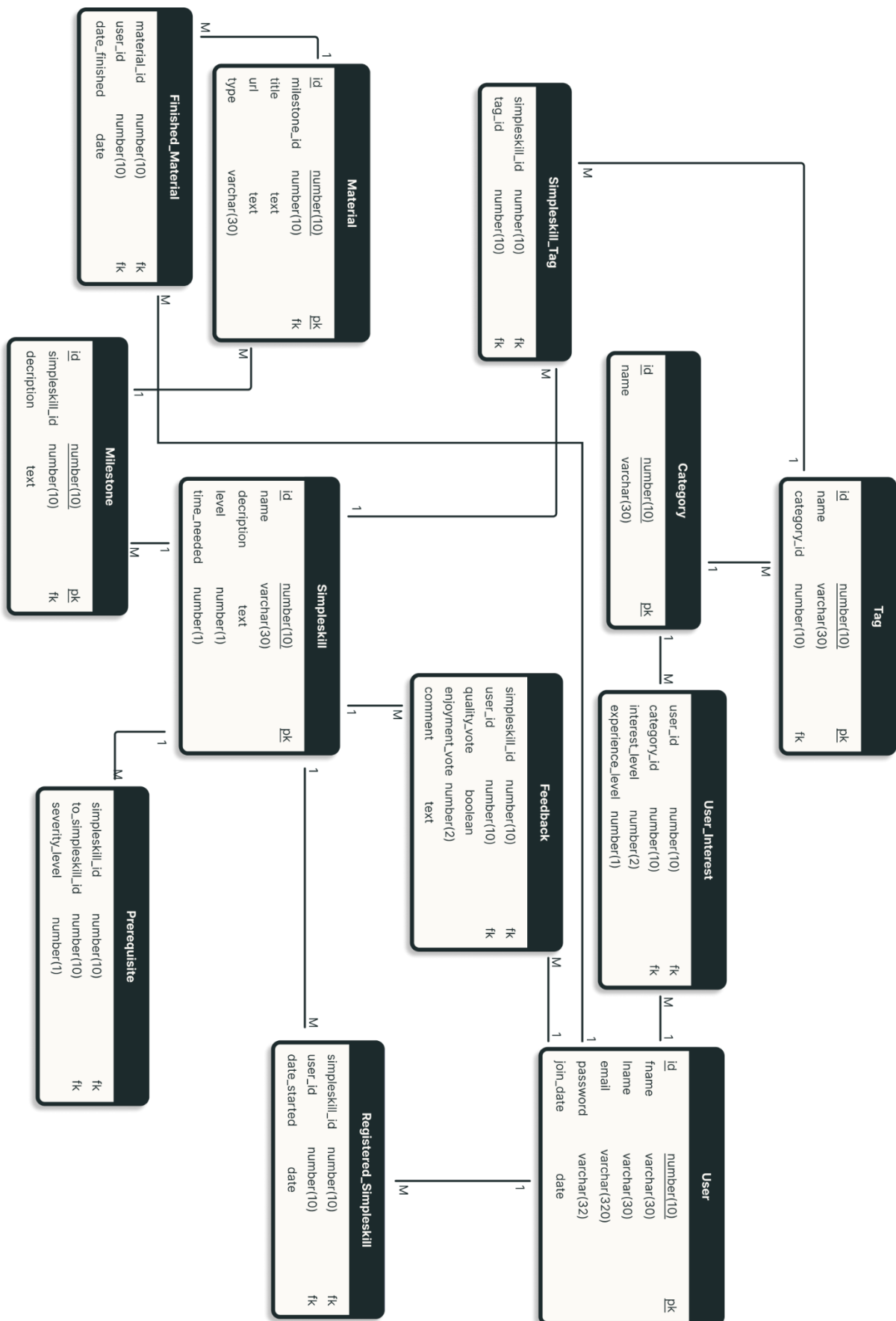
4.2: Interaction models:
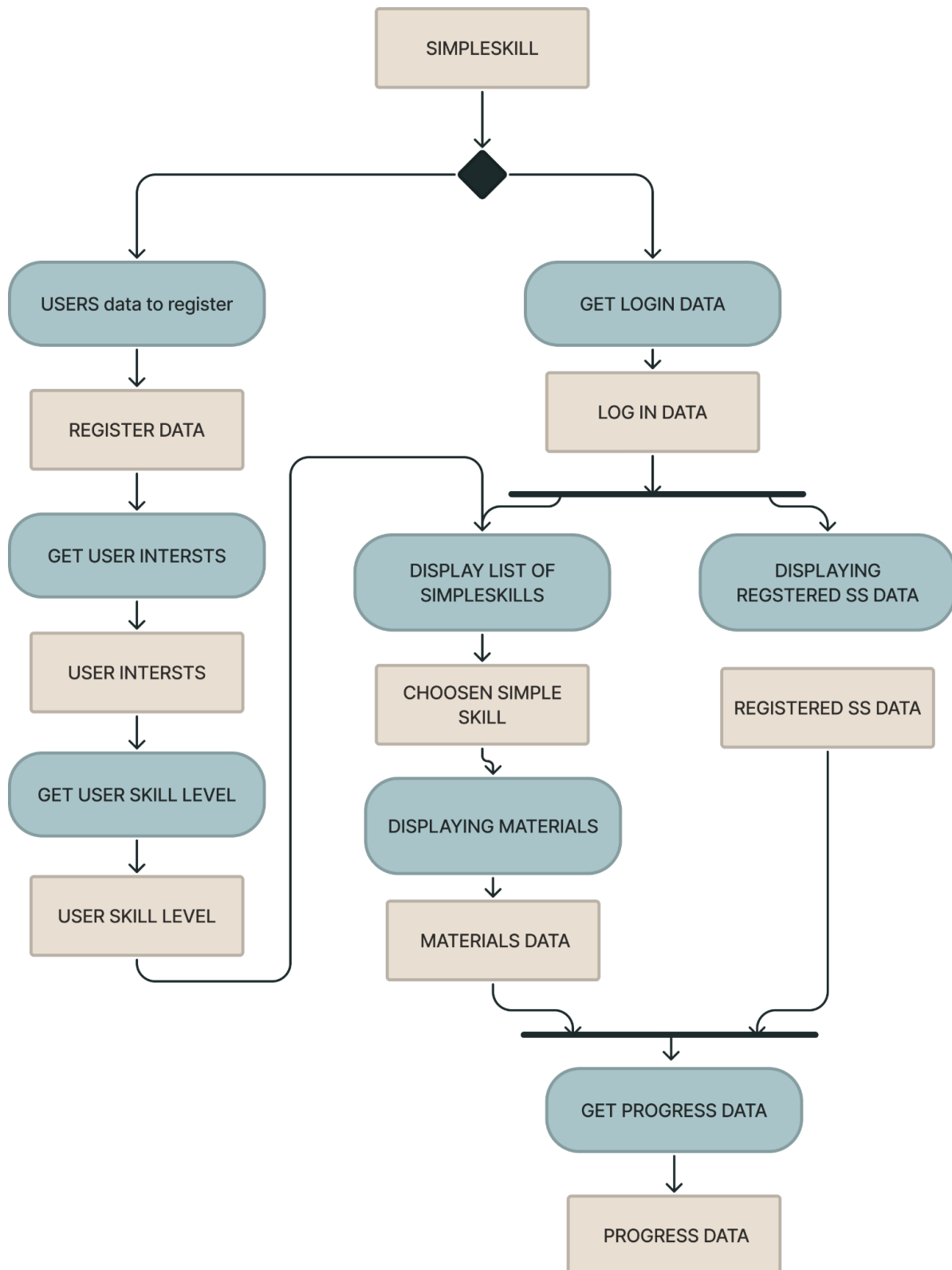
4.2.1: use-case diagram:

4.2.2: sequence diagram:

4.3: Structure models :

4.3.: Entity relationship diagram:

Finished_Material
material_id	number(10)	fk
user_id	number(10)	
date_finished	date	

Material
id	number(10)	pk
milestone_id	number(10)	fk
title	text	
url	text	
type	varchar(30)	

Simpleskill_Tag
| simpleskill_id | number(10) | fk |
| tag_id | number(10) | fk |

Milestone
id	number(10)	pk
simpleskill_id	number(10)	fk
decription	text	

Simpleskill
id	number(10)	pk
name	varchar(30)	
decription	text	
level	number(1)	
time_needed	number(1)	

Category
| id | number(10) | pk |
| name | varchar(30) | |

Tag
id	number(10)	pk
name	varchar(30)	
category_id	number(10)	fk

Feedback
simpleskill_id	number(10)	fk
user_id	number(10)	fk
quality_vote	boolean	
enjoyment_vote	number(2)	
comment	text	

User_Interest
user_id	number(10)	fk
category_id	number(10)	fk
interest_level	number(2)	
experience_level	number(1)	

Prerequisite
simpleskill_id	number(10)	fk
to_simpleskill_id	number(10)	fk
severity_level	number(1)	

Registered_Simpleskill
simpleskill_id	number(10)	fk
user_id	number(10)	fk
date_started	date	

User
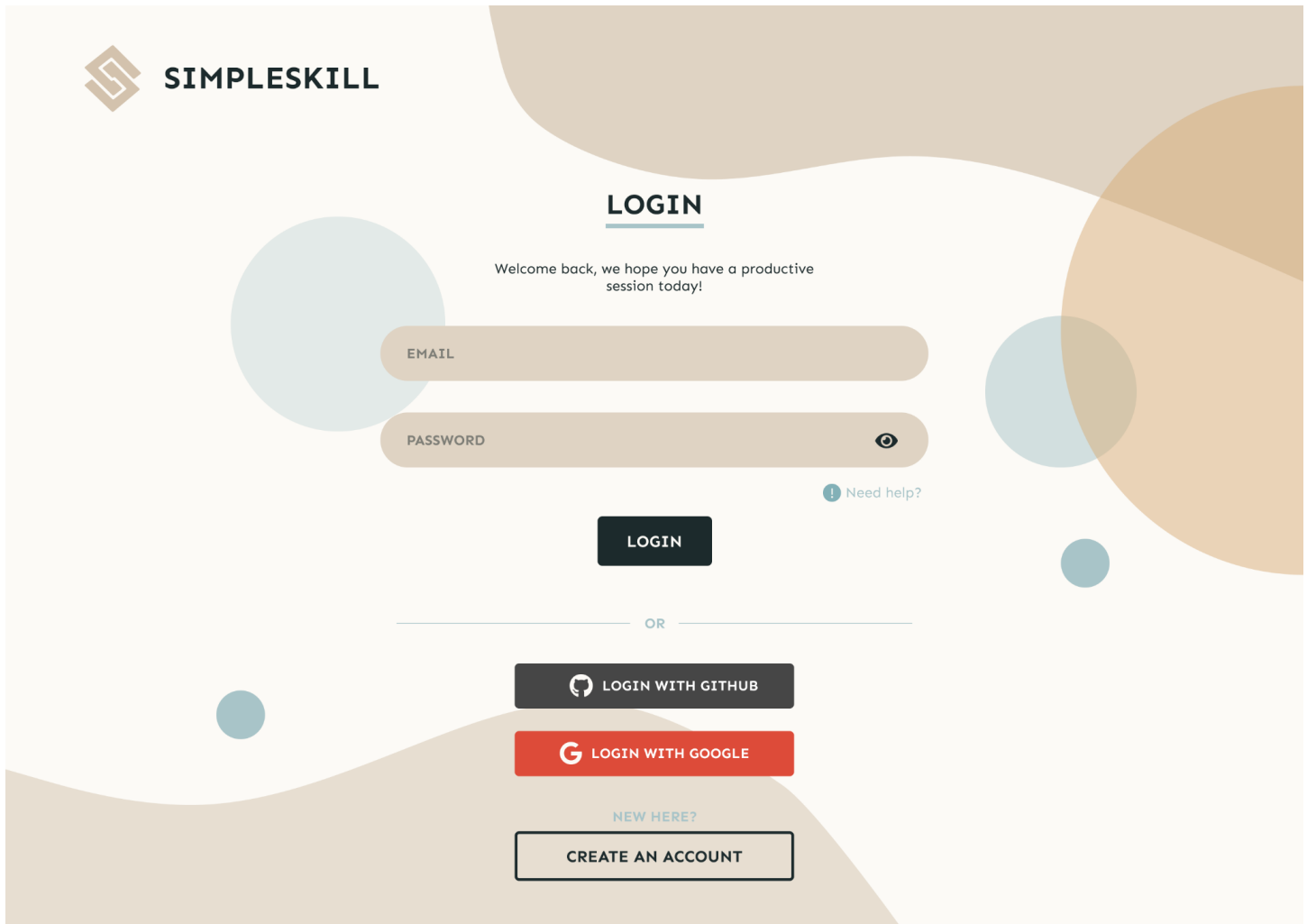| id | number(10) | pk |
fname	varchar(30)	
lname	varchar(30)	
email	varchar(320)	
password	varchar(32)	
join_date	date	

4.4: Behavioral models:

4.4.1: Data-driven model:

5. UI Design

The UI design was created on Figma, you can view it [here](#)[6]. Here's *some* of the website's UI's.

5.1. Login page

5.2. Dashboard page

SIMPLESKILL

Dashboard

WELCOME, NOUR ◄

| SEARCH | ALL | COOKING | WEB DEVELOPMENT | FISHING | WEB DESIGN |

SIMPLESKILLS

SORT BY: RECOMMENDED ▼

SIMPLESKILL

REACTJS HOOKS: USESTATE

VIEW PREREQUISITES ❯

OVERVIEW

This is the 2nd simpleskill in the 'Introduction to ReactJS' series. usestate is the most used reactJS hook; and is therefore the most important one to learn.

LEVEL: BEGINNER
DURATION: 30-60 MINUTES

6 MILESTONES

START

ON-GOING SIMPLESKILLS

SIMPLESKILL

CSS LAYOUTS: FLEXBOX

VIEW ALL MILESTONES ❯

MILESTONE 2

FLEX DIRECTION

2/6 MILESTONES

CONTINUE

SIMPLESKILL

Bitesize **simpleskills** on the daily.

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FIND US ON
f ⌂ in

5.3. Registration sequence

SIMPLESKILL

REGISTER

Welcome to Simpleskill, a platform where
freetime productivity is made easy!

EMAIL

PASSWORD 👁

CONFIRM PASSWORD

NEXT

OR

⭘ REGISTER WITH GITHUB

G REGISTER WITH GOOGLE

ALREADY A USER?

LOGIN

WHAT ARE YOUR INTERESTS?

You can add/remove any of them later at any time. It is not recommended that you skip this as it helps with recommendations.

- ◯ Art
- ◯ Computer Science
- ◯ Programming & Software Development
- ◯ History
- ◯ History
- ◯ History
- ◯ History
- ◯ History
- ◯ History
- ◯ History

NEXT

Skip

APPROXIMATE YOUR SKILL LEVEL

You can change this later at any time.

COOKING : **BEGINNER** INTERMEDIATE ADVANCED

COMPUTER SCIENCE : BEGINNER **INTERMEDIATE** ADVANCED

PROGRAMMING : BEGINNER INTERMEDIATE **ADVANCED**

I PROMISE I'M TELLING THE TRUTH

You're here to learn; no reason to lie.

6. Implementation

This is an open-source project, you can view the source code on [github](#)[7]. The project loosely adheres to the MVC design pattern, and utilized an agile development environment. The Django framework is used for the landing website and the actual application, as well as for authentication and other features which Django makes easy to set up. SQLite is a database used for storing all the data needed for the application to function. The project is hosted on a free VPS on Oracle cloud and a live demo can be viewed on https://simpleskill.nourgaser.com[8].

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[7] Source-code: https://github.com/nourgaser
[8] Each team member has a specific role within the implementation but it's all hosted under the team member Nour Gaser's name for convenience sake only.

7. Summary

Simpleskill is an open-source, general-purpose, platform where you can learn simpleskills in your free time. It aims –with that aid of psychology– to encourage its users and gracefully, effortlessly lead them into a steady stream of knowledge and experience, so that they can look back after years, and wonder how they came to learn so much about so many fields. It also allows you to feel productive (in an entertaining manner) during a subset of your free time, so that you can enjoy the rest of it knowing you've already done something productive and invested in your future.

Simpleskill is for you if:

-You frequently feel like you should be doing more.

-You can't get the most out of your free time because you feel bad that you're not not doing something productive.

-You like learning something new every day.

-You're not sure what you want to learn; but you want to be productive and learn something.

-You like learning topics from various fields.

-You like learning topics from a specific set of fields.

-You enjoy self-learning as opposed to organized education and courses.