Memory Path Documentation

1. Concept

The Loci Method

The method of loci (*loci* being Latin for "places") is a strategy of memory enhancement which uses visualizations of familiar spatial environments in order to enhance the recall of information. The method of loci is also known as the memory journey, memory palace, or mind palace technique. This method is a mnemonic device adopted in ancient Roman and Greek rhetorical treatises. Many memory contest champions report using this technique to recall faces, digits, and lists of words.

The items to be remembered in this mnemonic system are mentally associated with specific physical locations. The method relies on memorized spatial relationships to establish order and recollect memorial content. It is also known as the "Journey Method", used for storing lists of related items, or the "Roman Room" technique, which is most effective for storing unrelated information.

Our Application

Modern technology allows us to adapt, update and enhance this method, creating a learning environment, which allows users to visualize and expand their "mind palace" or "memory palace" in order to help them memorize information. A big problem was that rooms are limited. A solution for that might be virtual rooms, but they are making a big effort to build. Instead of a room, we are using routes - so called "paths"- created by the user. Each path includes custom "points of interest",from a specific landmark to an attention grabbing detail, to which the user can appoint questions and answers.

Customization

The users can create their own paths and mark points of interest. They can choose pictures for their path from google maps or use their own.They can add their own questions and answers.

Community

The users are allowed to save and share the "paths" he has created, as well as gain access to paths created by the community. They can search for the subject they are interested in and adapt existing paths to their needs.

Physical Aspect

For the sake of practicality the users have the choice to ignore the physical aspect of the app and work with virtual paths provided by the app and powered by navigation programs. However, the app encourages them to walk the "paths" they wish to use for the app and

mark their own points along the way. This provides a higher degree of interaction and engagement, thus improving the effectiveness of the up, while encouraging physical exercise and movement, often lacking in our target group.

Gamification

In order to provide additional incentive, the app allows the users to compete against friends and peers, but also against themselves. The implementation of a scoring system or a leaderboard, depending on the field of study and the available paths, would further motivate the users, while personal challenges, goals and stats would allow them to view their progress and push themselves in order to improve their performance. The competitive aspect of the app, would also provide a sense of variety and refreshment, so that the app will not become repetitive.

Healthy & Outdoor

The app motivates to go out and move around with friends through gamification and challenging. By creating familiar routes (paths), you can walk everyday routes that you might otherwise drive by car and even learn vocabulary and math formulas. This not only protects the environment but also keeps you fit and healthy. Furthermore, it is possible to integrate the app into your jogging routine. So that you can exercise and learn at the same time.

2. App Description for the App Store:

An ancient method with a modern twist!

The method of loci is a strategy of memory enhancement, that has been used since ancient times. It uses visualizations of familiar spatial environments in order to enhance the recall of information.

The "Memory Path" is your way towards the easier and more fun memorization of information. Based on the loci method, that has been in use since the times of Ancient Greece, and enhanced with cutting age technology, this interactive journey will allow you to create "paths", that include "points of interest". Upload your documents, scan your study material and assign key information or questions you wish to memorize to each point and practice by "walking" the path you created, in the real or the virtual world.

Share your paths with others and search for paths that may be of interest to you. Compete with friends and peers to climb the leaderboards and complete daily challenges to improve yourself.
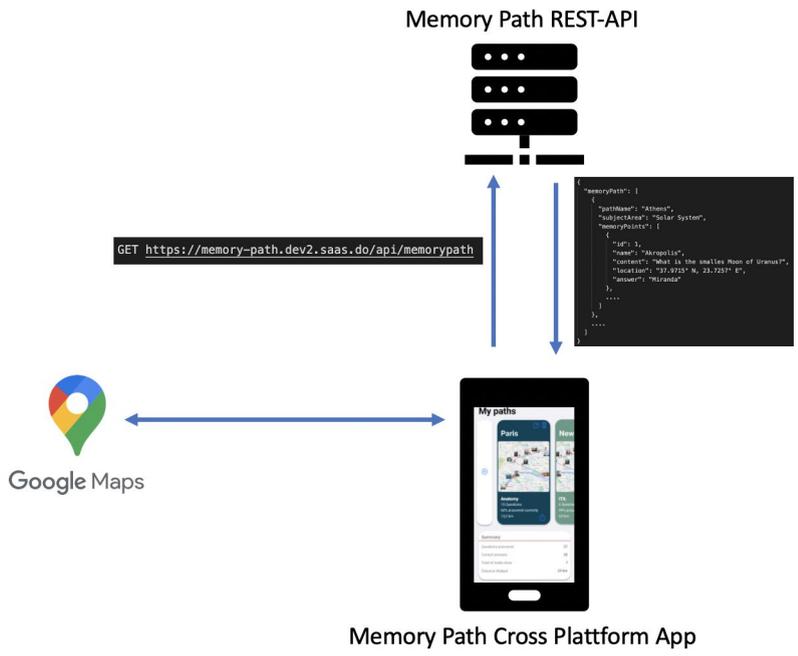
Key features:
- · Memorize information with ease
- · Prepare for upcoming exams
- · Create and personalize your paths
- · Upload your own pictures or use suggestions from our gallery
- · Make your questions and answers
- · Share your paths with friends and classmates
- · Compete with others to climb the leaderboards
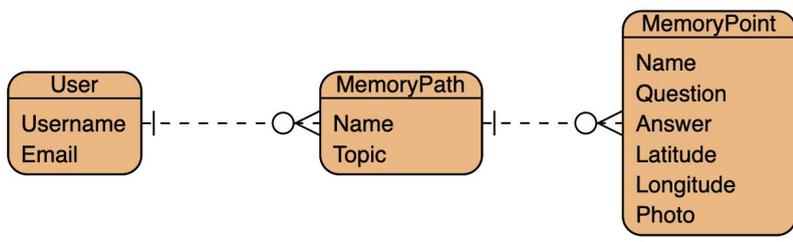- · Expand your knowledge with daily challenges

Technical Architecture

The architecture of Memory Path consists of a REST-API Backend and a cross-platform app frontend.

Memory Path REST-API

GET https://memory-path.dev2.saas.do/api/memorypath

{
  "memoryPath": [
    {
      "pathName": "Athens",
      "subjectArea": "Solar System",
      "memoryPoints": [
        {
          "id": 1,
          "name": "Akropolis",
          "content": "What is the smalles Moon of Uranus?",
          "location": "37.9715° N, 23.7257° E",
          "answer": "Miranda"
        },
        ....
      ]
    },
    ....
  ]
}

Google Maps

My paths

Memory Path Cross Plattform App

Backend

The Backend has the responsibility of retaining user profiles including saved paths and points. It exposes a RESTful interface for querying a list of paths for the signed-in user, and for each path, a list of points.
The entity model is as follows:

User		MemoryPath		MemoryPoint
Username		Name		Name
Email		Topic		Question
				Answer
				Latitude
				Longitude
				Photo

Frontend

The Frontend is responsible for displaying the paths and points, as well as enrich them with content from a mapping API.

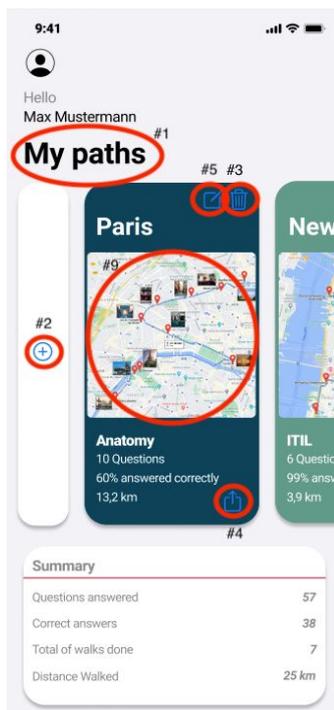# 3. Mock up & User Stories

Definitions

Memory Path:
A Memory Path is a collection of Memory Points that form a walkable path on a map.

Memory Point:
A Memory Point is a location that is associated with a question and an answer and a photo.

EPIC 1: Memory Paths

User Story #1: Overview Memory Paths

User Story #2: Create a Memory Path

User Story #3: Delete a Memory Path

User Story #4: Share a Memory Path

User Story #5: Edit a Memory Path

User Story #6: Study with a Memory Path

Story 1: Overview Memory Paths

As a user, I want to see a list of all my created Memory Paths. For each Memory Path I want to see:
- the name of the Memory Path
- a map which displays the Memory Points
- the topic
- number of Memory Points
- optionally: a statistic of how many questions were last answered correctly
- optionally: configure view (e.g. see pictures/disable pictures)

For each path, I want to be able to trigger:
- Story 2 (Create a Memory Path)
- Story 3 (Delete a Memory Path)
- Story 4 (Share a Memory Path)
- Story 5 (Edit a Memory Path)
- Story 9 (Study with a Memory Path)

Story 2: Create a Memory Path

As a user, I want to create a new Memory Path with the attributes "topic" and "name".
A topic is a text that best describes the learning content of this path i.e. "muscle groups in the torso".
A name is a short recognizable description of the path, i.e. "Way to school".

Story 3: Delete a Memory Path

As a user, I want to delete a whole Memory Path and all Memory Points associated, to clean up my Path overview from unnecessary topics.

Story 4: Share a Memory Path

As a User, I want to share Memory Paths to have a memorable experience with other users.

Story 5: Edit a Memory Path

As a user, I want to edit Memory Paths. I want to view a list of all my created paths. For each path I want to edit:
- the topic
- number of Memory Points
- length of the path in kilometers

For each path, I want to be able to trigger:
- Story 6 (Add a Memory Point to Memory Path)
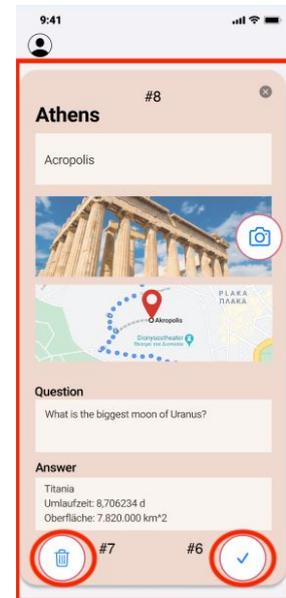- Story 8 (Edit a Memory Point)

EPIC 2: Memory Point

User Story #6:
Add a Memory Point to memory Path

User Story #7:
Delete a Memory Point

User Story #8:
Edit a Memory Point

Story 6: Add a Memory Point to Memory Path

As a user that has created a Memory Path, I want to be able to add one or several Memory Points to a Memory Path. For each Memory Point, I want to specify:
- A recognizable name for the location. The name is suggested based on the current location and landmarks nearby but can be changed by the user
- the exact location (alternatively my current location)
- a photo of the location (either from the camera roll, or a suggested image from Google Maps)
- a question (i.e. "Which skeletal muscle is located between shoulder and spine?")
- An answer (i.e. "Trapezius")

Story 7: Delete a Memory Point

As a user, I want to delete a Memory Point. The Memory Point will be deleted from its connected Memory Path.

Story 8: Edit a Memory Point

As a user, I want to change questions, answers, pictures, and locations for single Memory Points. For each point I want to edit:
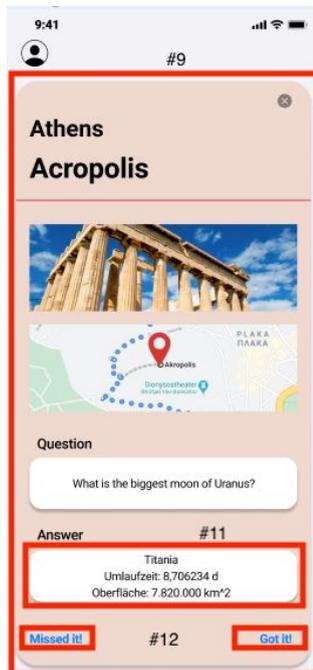- question
- answer
- picture
- location

For each point, I want to be able to trigger:
- Go back to Overview - Story 1 (Overview Memory Path)
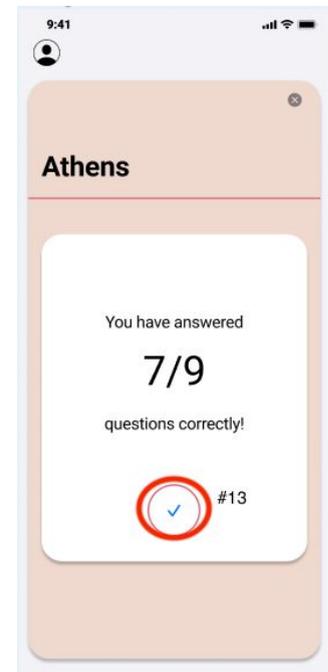- Story 7 (Delete a Memory Point from Memory Path)

EPIC 3: Studying with Memory Path

User Story #11:
Show Correct Answer

User Story #12:
Enter if given answer was right or wrong

User Story #13:
Understand learning progress

Story 9: Study with a Memory Path

As a user, after selecting a Memory Path, I want to start the learning mode to associate the pieces of knowledge with my selected places.
In the learning mode, the different Memory Points are shown one after the other.
For each Memory Point, I want to see:
- The location on a map, marked with a pin
- The picture associated
- The question associated

From this Story, I can trigger Story 11 (Show Correct Answer). The process repeats until all Memory Points are displayed, or until I abort the process.

Story 10: Receive Push-Notifications while Following a Memory Path

As a User, while using the learning function, I want to receive push-notifications to have a deeper association between the place and the piece of knowledge.

Story 11: Show Correct Answer

After I have considered an answer to the shown question, I would like to check if my answer is correct, to see whether I learned something with Memory Path.
- Button to show/hide the correct answer.
- Possibility to mark a question answered correctly.
- (Idea) The app creates a pool of wrong answered questions to request these questions primarily

Story 12: Enter if given answer was right or wrong

As a user, I want to enter whether my response to a question correctly or not to track my learning progress.

Story 13: Understand learning progress

As a User, I want to see my learning progress to understand my learning progress over time.

EPIC 4: User Administration

Story 14: Registration

As a User, I want to create my user account to profit from personalized Memory Paths

Story 15: Login

As a User, I want to Log in to my account to have access to my Memory Paths

Story 15: Update E-Mail Address

As a User, I want to be able to change my registered E-Mail address in case my old one becomes invalid

Story 16: Update Password

As a User, I want to be able to change my password whenever I want to secure my account from unauthorized access.

Story 17: Forgot Password

As a User, I want to be able to reset my password with the help of my E-Mail address to regain access to my account

Story 18: Logout

As a User, I want to be able to log out from my Account to secure my account information from third parties.

EPIC 5: Outlook

The project will be continued by Hannes Stelzer and Fridolin Katz. If you are interested in the progress visit http://memory-path.com/ or contact them via contact@memory-path.com.

4. Our Team

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