DIPLOMA THESIS

ONLINE VISUALISATION OF HIKING ACTIVITIES

WEB-APPLICATION FOR HIKING

AIM: To design, and develop a web-based platform to visualise interactively simulated hiking activities using evaluate decision relevant map layers.

I. Data phase: **objective I**

Defining and designing the data acquisition process.

Research questions

a) What is the decision relevant information for a decision support system for travellers focusing on hiking activity?

b) What Application Programming Interface (APIs) are available and relevant for a decision support system focusing on hiking activity, and what criteria do the APIs have to fulfil?

II. Visualization and evaluation phase: **objective II**

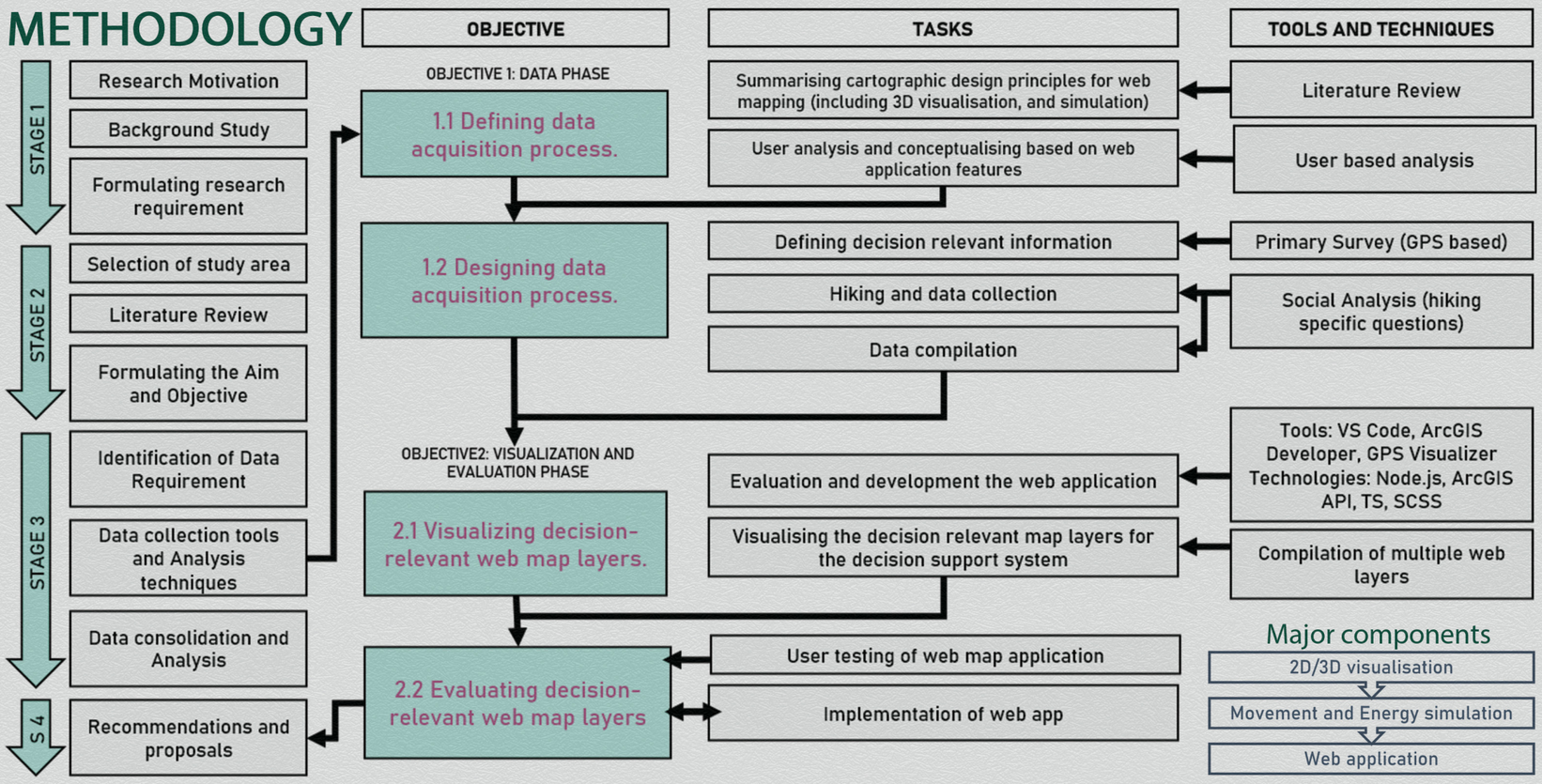
Visualizing and evaluating decision-relevant web map layers.

Research questions

a) What web mapping applications exist, and how do they support travellers' decisions?

b) How should the map elements be designed to support the traveller best?

METHODOLOGY



DATA

Primary

Hiking specific

▲Hiking Trails (title, length, difficulty and geometry),
▲Elevation (contour lines)
▲Additional survey and observations

Secondary

▲State boundary
▲Salzburg boundary
▲Refreshment & recreations
▲Raster data layers

After considering the assumptions made about the user personas and the general concept of the web application, decision-relevant information was classified into three primary groups:

- Information on map layers
- Information on places information
- Additional in information

TOOLS AND TECHNOLOGIES

Data compilation and Processing

- Data Compilation
- Data Processing
- Data Correction and conversion

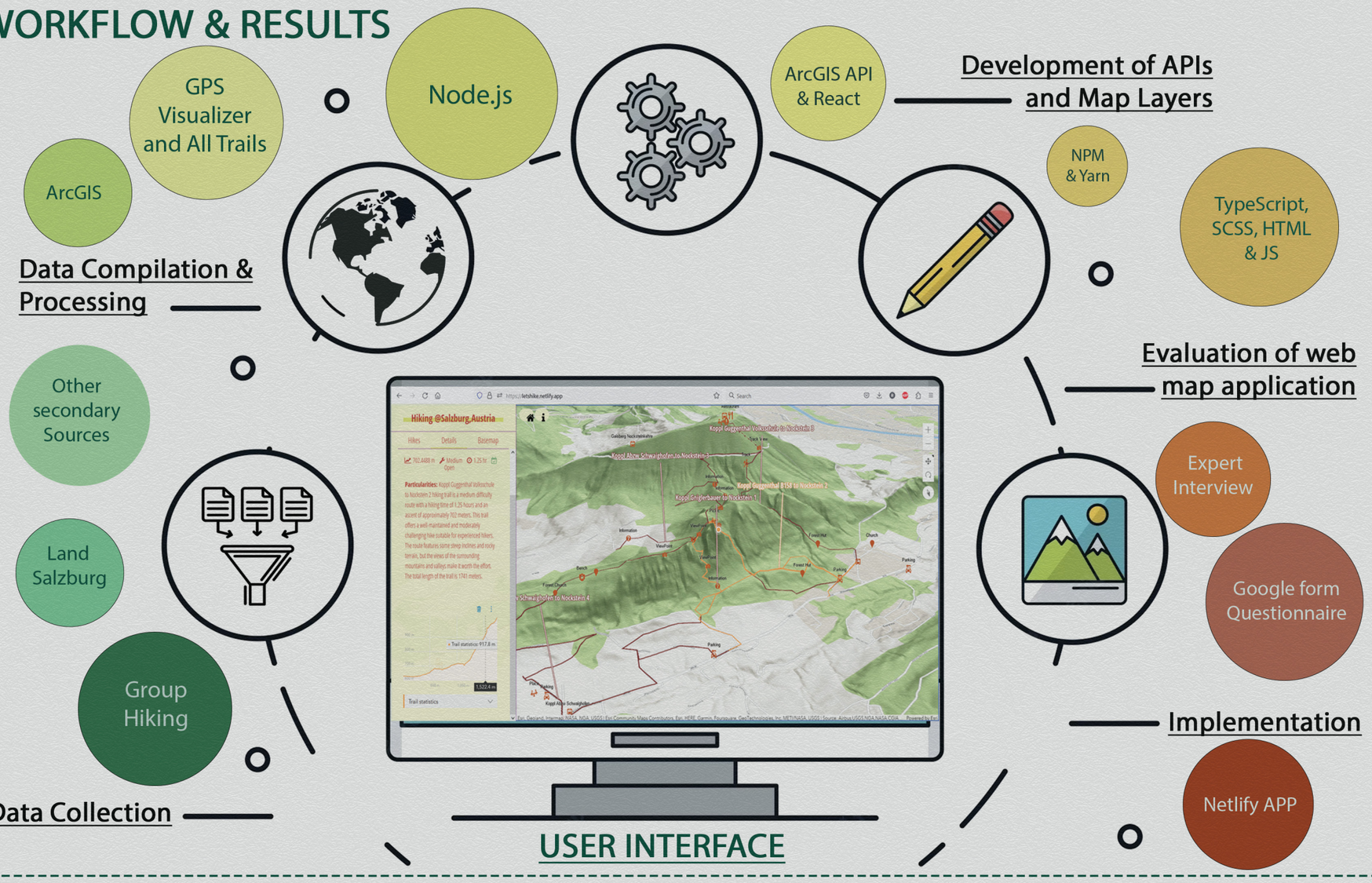
Layers hosting and building

- Map Layers develop. & hosting
- Development of Node Modules
- API integration and stylings

Server hosting and publishing

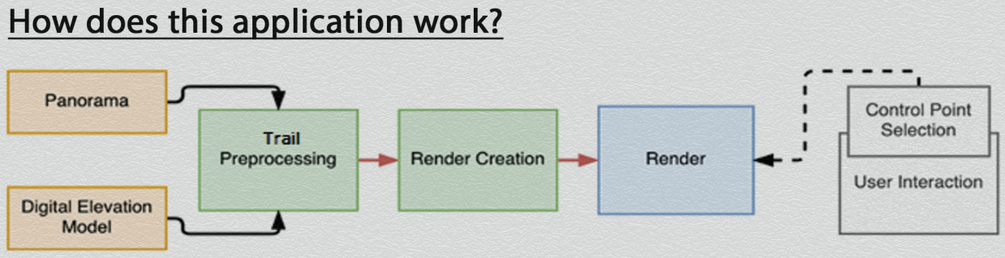
- Hosting web repositories
- Service layer hosting
- App deployment

WORKFLOW & RESULTS

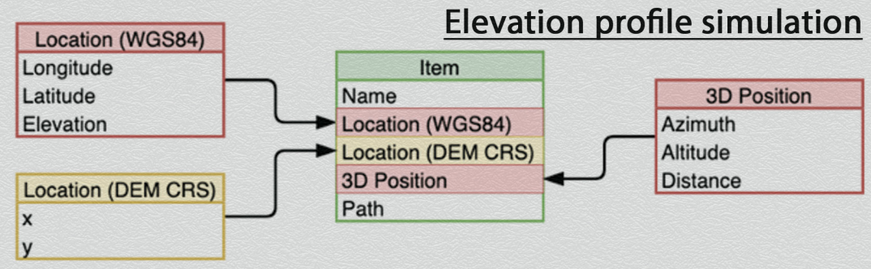


Programming Languages	Number of Units
.ts (62%)	16
.scss (25%)	10
Others (HTML and .js)(5%)	7

How does this application work?



Elevation profile simulation



WEB APPLICATION COMPONENT (HIGHLIGHTS)

List of trails
(organized into lists and filters)

Trail's profile and statistics
(graph and simulation included)

Hiking points and informations
(managed with pop-ups)

Different basemaps

- The map view contains a 3D scene, following the web cartographic rules.
- The elevation profile includes pointer simulations and interactive graphs.
- The hiking points and information, along with pictures, are managed in pop-ups.

This application is currently compatible with big-screen devices, such as desktops or tablets. Additionally, you can also try accessing it on mobile phones in landscape mode.

SCAN TO SEE THE APP

https://letshike.netlify.app

Future upgrades

- upscaling
- additional Hiking Navigation Features
- more reactive design as web application
- mobile application

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Scan here to connect!