Fontys
University of Applied Sciences

Internship Project Plan

IMPROVING DATA VISUALISATION

TADA SOLUTIONS, EINDHOVEN

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Version

Version	Date	Author(s)	Amendments	Status
1.1	20.02.2024	I. Nekezova	Cover page, Basic structure, and Research questions	First Draft
1.2	23.02.2024	I. Nekezova	Breakdown of the Project, Time Plan and Gantt Chart	Draft
1.3	26.02.2024	I. Nekezova	Approach, Learning Outcomes	Draft
1.4	28.02.2024	I. Nekezova	Breakdown of the project and Time Plan	Draft

Communication

Version	Date	To
1.3	27.02.2024	*Jos Cup*
1.3	27.02.2024	*Wietse Klomp*
1.4	28.02.2024	*Li, Li L.*

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1. Project Assignment

1.1 Context

Tada Solutions specialises in data organisation and management, turning raw data into actionable insights through comprehensive analytics, sourcing, and visualization. They provide services like tracking customer experiences and creating easy-to-use data dashboards. Tada Solutions aims to give organisations the tools they need to make quick decisions based on real-time information.

Bankai is a digital strategy and design agency. Their team includes designers, researchers, strategists, psychologists, and developers. Bankai's mission is to help organisations make informed decisions and create outstanding digital experiences. They specialise in using insights from users to design beautiful and effective digital solutions, ultimately driving success for their clients.

The assignment involves collaborating with both Tada Solutions and Bankai to enhance data visualisation. The goal is to develop intuitive, visually compelling solutions that enable clients to extract actionable insights from complex datasets. The assignment stems from the increasing demand for advanced analytics capabilities, driven by clients' need to gain competitive advantages and drive business growth in dynamic market environments.

1.2 Goal of the project

By developing intuitive and visually appealing data visualisation tools, the goal is to empower organisations to extract actionable insights from complex datasets. This initiative seeks to improve decision-making processes, enhance operational efficiency, and drive business growth for clients. The project will result in advanced data visualisation solutions integrated with AI forecasting techniques, offering clients comprehensive analytics tools for strategic decision-making.

1.3 The assignment

The assignment entails improving data visualisation for Tada Solutions. The main goal is to develop visually appealing and intuitive dashboards integrated AI forecasting techniques to empower organisations to extract actionable insights from complex datasets.

- The result must meet minimum quality requirements, including and intuitive user interface design, accuracy, and reliability.
- Functional requirements include interactive feature and AI forecasting integration.

The aim is to deliver comprehensive solutions enabling clients to make informed decisions and achieve business success.

1.4 Scope

The project includes:	The project does not include:
1 Conducting an analysis of the current data visualisation and techniques employed by the company.	1 Full-scale implementation of the solution into the company's production environment. The actual deployment and management of the system fall outside the scope of this project.
2 Gathering requirements through interviews and consultations with stakeholders to understand their needs and expectations from data visualisation.	2 Extensive customisation of the dashboard beyond the prototype stage. The prototype will demonstrate the proposed enhancements, but further customisation tailored to specific client needs may require additional resources and effort.
3 Designing and developing a high-fidelity Figma prototype of an improved data visualisation solution.	3 Integration with external systems or databases beyond what is necessary for demonstrating the functionality of the prototypes.
4 Integrating AI forecasting relevant to the methods into the data visualisation system.	
5 Creating a Power BI dashboard prototype to showcase the enhanced data visualisation capabilities.	
6 Conducting user testing and gathering feedback for iterative refinement of the prototypes.	

1.5 Conditions

The company provides a conducive working environment for project development, including:

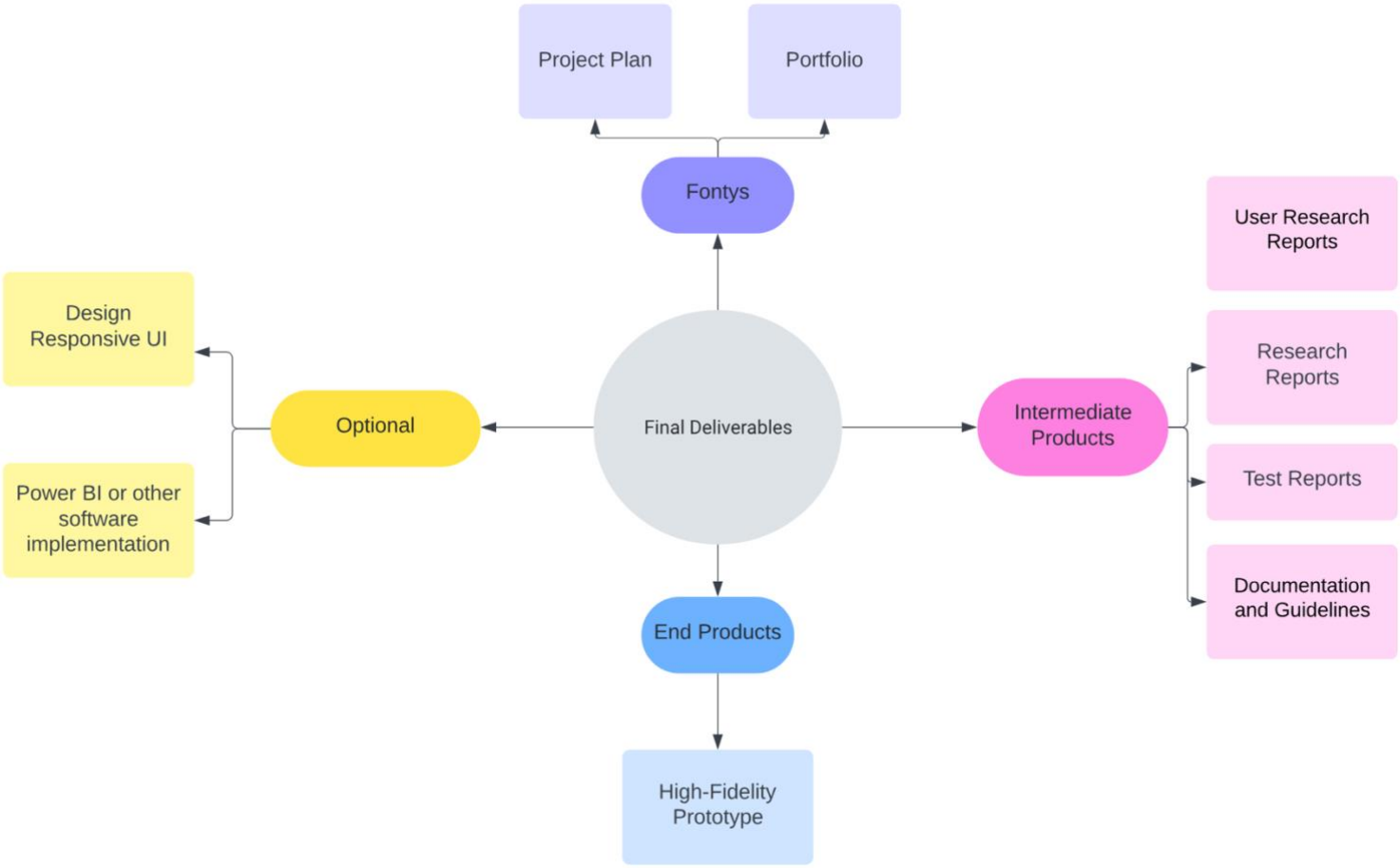
- Furnishing a personal desk with essential equipment like a laptop and monitor ensures seamless workflow during the project.
- Facilitating communication by providing me with company email to be able to contact clients, set up meetings or company visits.
- Assistance with language barriers, particularly English-Dutch translation, ensures effective communication with clients and enhances collaboration throughout the project.
- Access to company documentation and communication channels in Teams with professional developers.
- Providing legal advice from professionals ensures adherence to data privacy regulations, especially concerning personal data handling.

1.6 Finished products

This chart (Figure 1) presents a breakdown of the project's deliverables into end products and intermediate products. End products include the high-fidelity prototype. Intermediate products encompass essential documents and materials. The main deliverables for Fontys, like project plan and portfolio, are also provided. Optional is the possibility of creating a design for a mobile UI and also a PowerBI or other software implementation of the dashboards. The following deliverables are specifically tailored to the needs of the company and the project.

The deliverables outlined below are customized to meet the specific requirements of both the company and the project. Additionally, Fontys ICT, represented by the assessors, will receive an organised portfolio containing the same products, each thoroughly described.

Figure 1



1.7 Research questions

Main Research Question:

- "How can the current data visualisation be improved to enable clients to make better-informed decisions?"

Sub-Questions:

- What are the current and the general trends of data visualisation techniques and tools used by the company name?
- What are the specific needs and preferences of clients regarding data visualisation for decision-making?
- What are the key challenges or limitations associated with the current data visualisation approach?
- What are the capabilities and limitations of AI forecasting techniques relevant to the company's data?
- How can AI forecasting be integrated into existing data visualisation systems effectively?
- How do different data visualisation techniques impact clients' understanding and interpretation of data?
- What role does interactivity and user experience play in enhancing the effectiveness of data visualisation for decision-making?
- What are the potential risks or drawbacks associated with implementing new data visualisation techniques?
- How can the effectiveness of improved data visualisation be measured and evaluated?

2. Approach and Planning

2.1 Approach

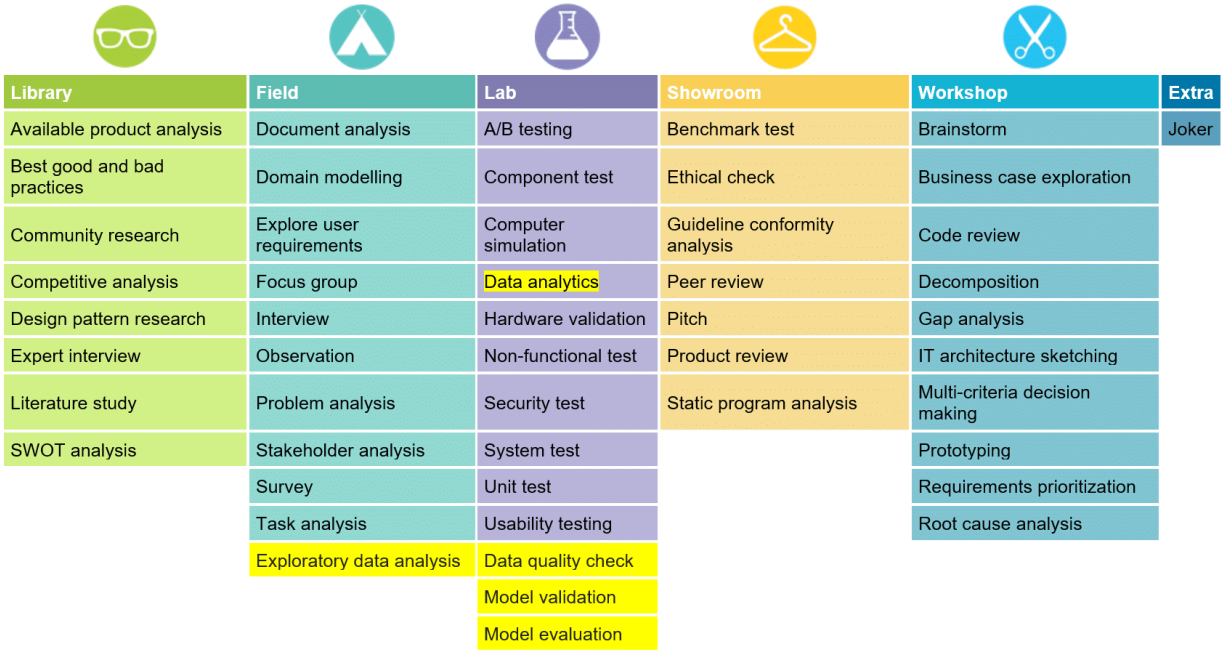
In this project, I will adopt the Waterfall methodology, ensuring sequential completion of phases.

Initially, during the Plan Phase, I'll conduct preliminary research, define project scope, and identify stakeholders.

Subsequently, the Execution Phase will involve Research, Design, and Develop phases, focusing on gathering insights, synthesizing findings, and developing prototypes.

The Completion Phase, encompassing Test and Evaluate stages, will validate prototypes, gather feedback, and finalise deliverables.

Additionally, I'll integrate Dot Framework and CMD methods to enhance project management and execution efficiency, ensuring a structured approach throughout the project.



Library	Field	Lab	Showroom	Workshop	Extra
Available product analysis	Document analysis	A/B testing	Benchmark test	Brainstorm	Joker
Best good and bad practices	Domain modelling	Component test	Ethical check	Business case exploration	
Community research	Explore user requirements	Computer simulation	Guideline conformity analysis	Code review	
Competitive analysis	Focus group	Data analytics	Peer review	Decomposition	
Design pattern research	Interview	Hardware validation	Pitch	Gap analysis	
Expert interview	Observation	Non-functional test	Product review	IT architecture sketching	
Literature study	Problem analysis	Security test	Static program analysis	Multi-criteria decision making	
SWOT analysis	Stakeholder analysis	System test		Prototyping	
	Survey	Unit test		Requirements prioritization	
	Task analysis	Usability testing		Root cause analysis	
	Exploratory data analysis	Data quality check			
		Model validation			
		Model evaluation			

2.2 Research methods

- What are the current data visualisation techniques and tools used by the company?
  - Field - Conduct **interviews** with key stakeholders within the company to gather insights into current data visualisation techniques and tools.
  - Field - **Review documentation** and reports related to data visualisation practices within the company.

- What are the specific needs and preferences of clients regarding data visualisation for decision-making?
    - Field – Create **surveys** to gather quantitative data on their preferences for data visualisation.
- What are the capabilities and limitations of AI forecasting techniques relevant to the company's data?
    - Library - Conduct a thorough **literature review** to understand the capabilities and limitations of AI forecasting techniques.
    - Library - Consult with AI and data science **experts** to gain further insights into the applicability of AI forecasting to the company's data.
- How can AI forecasting be integrated into existing data visualisation systems effectively?
    - Lab - Develop **prototypes** showcasing potential integrations of AI forecasting into existing data visualisation dashboards.
    - Lab - Conduct **testing** and iterative refinement of prototypes to identify effective integration strategies.
- How do different data visualisation techniques impact clients' understanding and interpretation of data?
    - Field - Conduct **user testing** to measure users understanding and interpretation of data presented using different visualisation techniques.
    - Lab - Perform **comparative analysis** of various visualisation techniques to assess their impact on client comprehension.
- What are the potential risks or drawbacks associated with implementing new data visualisation techniques?
    - Library - Conduct a comprehensive **literature review** to identify potential risks and drawbacks.
    - Stepping stone - Perform **risk analysis** to assess the potential impact of implementing new techniques.

2.3 Learning outcomes

LO 1: Professional duties
To demonstrate proficiency in carrying out professional duties, I will produce professional products aligned with the IT area of the project. This will involve creating high-fidelity prototypes in Figma and interactive dashboards in Power BI, adhering to industry standards and best practices.

LO 2: Situation-orientation
In order to exhibit situation-orientation, I will apply my previous experience in media design and smart mobile specialization to create relevant and impactful solutions for Tada Solutions and its clients. This includes conducting user interviews, surveys, and secondary research to gather relevant insights, and then utilising this information to inform design decisions and prototype development.

LO 3: Future-Oriented Organisation

I will analyse the organisational context of Tada Solutions, considering business objectives, sustainability goals, and ethical considerations in the execution of the project. I will explore opportunities for scalability and adaptability of data visualisation solutions to meet future organisational needs and industry trends.

LO 4: Investigative Problem Solving
To showcase investigative problem-solving skills, I will critically analyse the project from various perspectives. This includes critically evaluating existing data visualisation dashboards to identify usability issues and areas for improvement, applying analytical thinking to propose effective design solutions. Having a problem-solving approach to address challenges in integrating AI techniques into data visualisation, considering technical constraints and user requirements.

LO 5: Personal Leadership
In demonstrating personal leadership, I will take an entrepreneurial approach to the project and my personal development such as learning AI techniques and expanding expertise in UX/UI design. This involves actively seeking opportunities for learning and growth, reflecting on my own learning ability, and aligning my actions with the type of IT professional I aspire to become.

LO 6: Targeted Interaction
To exhibit targeted interaction, I will identify key stakeholders, including internal teams like the Data Analytics Team and external partners like the Bankai Design Team, and engage in constructive collaboration to achieve project goals. Communicate effectively with stakeholders to gather feedback, communicate project progress, and ensure alignment with project goals and objectives.

2.4 Breakdown of the project

For my assignment I choose to work with the Waterfall methodology where each phase has a main milestone which is mandatory to be completed so the next can begin. I divided my work into 6 phases:

1. **Plan Phase (February 19 - March 8)**:

- Preliminary Research:
  - Conduct initial background research to understand the company, industry, and clients.
  - Gather general information on data visualisation trends and AI forecasting techniques.
- User Research:
  - Identify target user groups and their characteristics.
  - Define research goals and objectives for understanding user needs and preferences.
- Define project scope, objectives, and deliverables.
- Identify stakeholders and establish communication channels.
- Set up project management tools and documentation repositories.
- Write Project Plan

2. **Research Phase (March 11 - March 22)**:

  - Primary Research:
    - Conduct user interviews and surveys to gather insights into specific requirements and preferences.
    - Explore user behaviours, pain points, and motivations related to data visualization and decision-making.
  - Secondary Research:
    - Review existing user studies, market research, and usability reports to supplement primary findings.
    - Analyse existing data visualisation tools and techniques used by the company.
  - Research best practices in data visualisation design and AI forecasting integration.
  - Determine the suitability of Figma for high-fidelity prototypes and Power BI for interactive dashboards.

3. **Design Phase (March 25 - April 12)**:

- Synthesise user research findings to inform design decisions and prioritise features.
- Collaborate with designers to create prototypes that address user needs and preferences identified during research.
- Create high-fidelity prototypes, focusing on visual aesthetics and user experience.
- Develop wireframes or mockups of the dashboards to outline the layout and interactivity.
- Define the data sources and integration points for AI forecasting.

4. **Develop Phase (April 15 - May 3)**:

- Start doing the Portfolio
- Incorporate usability testing into the development process to validate design decisions and identify areas for improvement.
- Begin developing the high-fidelity prototypes, iterating based on feedback from stakeholders.
- Start building interactive dashboards, incorporating the designs and data visualisation elements.
- Integrate AI forecasting models or placeholders for forecasting capabilities into the prototypes.
- Test the functionality of the prototypes as they are being developed.

5. **Test Phase (May 6 - May 24th)**:

- Validate the effectiveness of AI forecasting models or placeholders through user testing and feedback.
- Conduct user testing with stakeholders on the prototypes to gather feedback.
- Identify any usability issues or bugs in the prototypes and make necessary revisions.

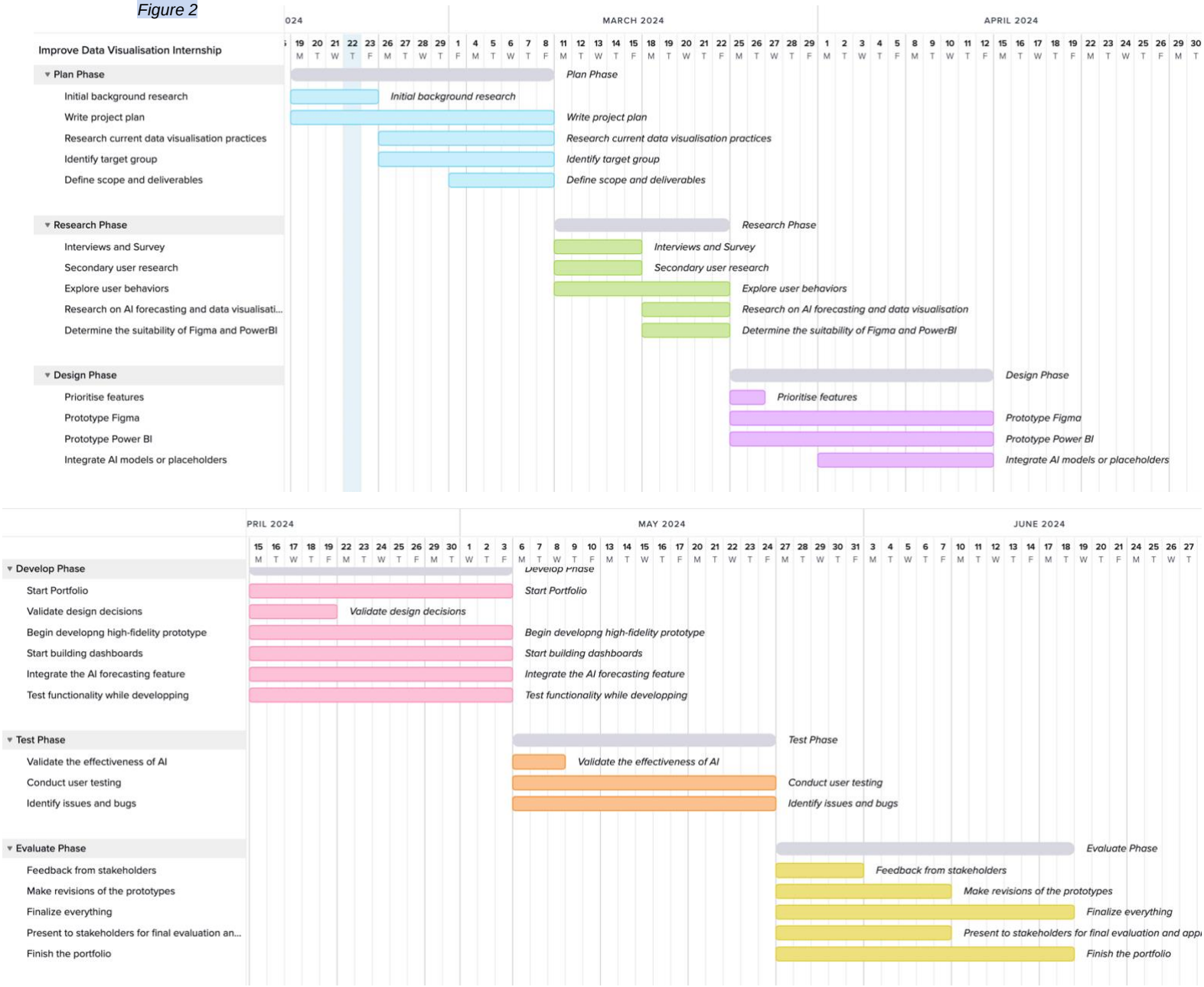
6. **Evaluate Phase (May 27th - June 18th)**:

- Continuously gather user feedback post-deployment to inform future iterations and enhancements.
- Use insights from user research to assess the impact of the project on improving decision-making processes for clients.
- Make necessary revisions to the prototypes based on the feedback received.
- Finalise the high-fidelity prototypes.
- Finish the Portfolio
- Present the prototypes to stakeholders for final evaluation and approval.

2.5 Time plan

I created a Gantt chart (Figure 2) to divide the project phases within the 5 - month duration of the internship. I based the chart on the scheduling available in Canvas (19 weeks). There might be an opportunity for slight adjustments.

Figure 2



3. Project Organization

3.1 Team members

Name + Phone + e-mail	Role/tasks	Availability
Ivayla Nekezova *ivaylanekezova@gmail.com*	*Intern*	*Monday to Friday*
Jos Cup *jos@tada-solutions.nl*	*CEO Tada Solutions, Mentor*	*Monday to Friday*
Wietse Klomp *wietse@bankai.eu*	*CEO Bankai, Second Mentor*	*Monday to Friday*
Thijn Holthuis *thijn@bankai.eu*	*Senior UX/UI Designer*	*2 days a week/ online*
Li, Li L. *li.li@fontys.nl*	*Fontys First Assessor*	*1 day a week/ online*
Georgios Metaxas *g.metaxas@fontys.nl*	*Fontys Second Assessor*	*-*

3.2 Communication

Communication with stakeholders will involve regular meetings with the company mentor from Tada Solutions, providing support and guidance on project progress and insights throughout the week.

Additionally, there will be occasional meetings, once or twice a week, with the mentor from Bankai to discuss design decisions and gather feedback.

Furthermore, biweekly meetings are scheduled with the university assessor to review project milestones, address challenges, and ensure alignment with academic objectives. While the frequency of these meetings may vary slightly, they will generally adhere to this schedule.

4. Finance and Risks

4.1 Risks and fall-back activities

Risk	Prevention activities included in plan	Fall-back Activities
1 Unexpected absence of key project stakeholders	• Regular communication and updates with stakeholders. • Documenting decisions and project milestones.	• Designate a temporary project lead or seek guidance from another mentor within the organisation. • Utilise documented project plans and milestones to guide decision-making.
2 Difficulties due to Dutch language barrier	• Be informed about the people communicating (their language, cultural norms, etc.).	• Utilising language translation tools or software. • If needed seek assistance from a colleague proficient in Dutch.
3 Technological limitations or unforeseen technical challenges	• Thoroughly researching and evaluating technologies and tools before implementation. • Regular testing and prototyping. • Seeking guidance and support from experienced technical experts.	• Allocate additional time to troubleshoot and resolve issues. • Consider alternative technologies or approaches to mitigate limitations.
4 Changes in project requirements or scope	• Establishing clear project scope and objectives. • Maintaining open communication channels with clients and stakeholders.	• Prioritise critical project deliverables. • Adjust plans accordingly.

5. Other

<< Describe here everything that is relevant but that you cannot put elsewhere in the document.>>