Problem Definition and Solution Planning

Exercise

The structured plan, about how your group defines the problem and creates a plan towards the prototype development, is one of the main deliverables of this course. Make sure you create a plan and address the issues and questions listed below. On the basis of this plan you need to create a 3 minutes long presentation during the first day of the hackathon. The plan also serves as a guideline for your prototype development.

Your deliverables for this exercise:
- Problem definition and solution plan
- 3 minutes group presentation of your plan

You can submit both deliverables in the format you prefer. However, the deliverable should be structured, and it should address all the points below.

Submit all deliverables to your team folder in StudIP.

Section 1: Problem Definition

- **Problem Statement:** Clearly and concisely articulate the problem.
  - What is the problem or challenge you selected?
  - What are the potential consequences of the problem, what should be avoided?
  - What is your target group? How are they related to the problem?
- **Problem Significance:** Explain why this problem is important and worth investigating.
- **Target Question:** Based on the point above, develop specific and answerable question(s) what you are going to address.

Section 2: Goals and Objectives

- **Goals and Outcomes:** Based on your target questions, define the ultimate, realistic and specific goal(s) and outcome(s) of your solution. Be clear and concise in stating your objectives.
- **Expected Impact:**
  - What is the potential impact of your solution?
  - How will you check that your solution meets your goals and answers your target questions?
  - What is your evaluation strategy to check the quality of your outcomes?
- **Define your requirements:** Based on your goals and impact expectations, define specific requirements for your solution.
  - What is the priority among your requirements?
  - Who is responsible (owner) for each requirement?
  - What effort do you expect it takes to deliver each requirement?

- ○ How to validate the quality of requirement upon delivery? How will you know that you achieved the quality you expect from each requirement?

Section 3: Methodology

- **Assign a methodology to your requirements.** Explain which methods you will apply to develop your solution.
    - ○ In what way will you address a particular requirement of yours?
- **Approach:** Describe the overall strategy for proposing your solution (e.g., qualitative, quantitative, mixed methods).
- **Data Collection Methods:** Specify how you will gather data (e.g., surveys, interviews, experiments, observations).
- **Data Analysis Techniques (if needed):** Outline the methods you will use to analyze your data (e.g., statistical analysis, thematic analysis).
- **Method Evaluation:** Explain, how you will evaluate the effectiveness of your method(s), especially for methods that are focussing on data analysis. Describe how you will gather data to evaluate your outcomes.

Section 4: Timeline

- **Create a plan:** Outline measurable and achievable steps to reach your overall goal(s), on the basis of your methodological choices, as outlined above.
    - ○ What are your priorities? How do they match with your goals and expectations?
    - ○ What tasks does your team need to do to meet your priorities?
    - ○ Who in your team will be responsible for what (e.g. task responsibility)?
- **Key Milestones:** Identify major stages of your plans and their estimated completion time.
    - ○ What are your milestones?
    - ○ How do you connect milestones to your priorities?

Section 5: Evaluation Plan

- **Evaluation Criteria:** Based on your goals and methods, define the standards or measures you will use to assess the success of your solution. Make sure you cover all requirements and milestones.
- **Risk analysis:** List which are the key risks of your project and how will you address them.
- **Next steps.** Create an action plan based on the evaluation of your project.
    - ○ What needs to be changed, improved?
    - ○ Do you need to change your problem statements?
    - ○ Do you need to change the original goals and requirements?
    - ○ Do you need to define new requirements?
    - ○ Do you need to change/update your methodology?
    - ○ Do you need new expertise in your team?