

Assignment 5: Xinformatics (Spring 2025) - Written (20%) – Wednesday, April 23rd, 2025 (by 10:00 pm ET) and FINAL presentation (10%) – Wednesday, April 23rd, 2025 (during the class).

One person from each Project Team should submit the written report and the presentation slides by email or on LMS (include each group members name and email addresses at the beginning of the written report). Use the following file naming for submissions: Xinformatics2025_Project_YOURGROUP<i.e. TEAM_5, etc.>.xxx, including the presentation. Late submission policy: this is not an assignment to hand in late.

Note: **Your report for this assignment should be the result of group work.** Take care to avoid plagiarism (“copying”), including citations to all web resources, texts, in your write up and class presentation. You may discuss the problem you are addressing with other groups, but do not take written notes during these discussions, and do not share your technical or written solutions with other groups.

General assignment: Pursue a detailed use case around a particular area of informatics; includes developing a prototype information system, architecture, design, etc. The weighting score for each question is included below. The detailed definition of the assignment details will be developed within your team. Please use the question numbering (1-6) below for your written responses for this assignment.

1. Abstract and Introduction (1%)

Abstract should include the overall summary of the project (Abstract 300 – 400 words). In the introduction section, please provide the background and motivation behind choosing a particular area of informatics for this project and why it is important and how it will benefit the general society or research community. (Introduction - minimum 1 page).

2. Develop or refine a use case around the particular area of informatics. In developing the use case consider the required architecture, design and prototype implementation to meet the goal(s) of the use case. (4%)

a). Document the use case. Extract and document the functional requirements and information uncertainty/ entropy aspects of the use case. Describe what the use case addresses, its goal, and why you made your choice (*include a completed use case document. what you completed for Assignment 1 but here as a team - using the structure from Assignment 1*). Discuss what uncertainties need to be minimized and why. Discuss organization and presentation needs for the planned information content. Minimum 1 page.

b). Discuss how a prototype implementation will address areas defined in lecture materials covering information uncertainty, semiotics, cognition, and architectures. Give details on your design. Minimum 1/2 page.

3. Develop a conceptual and logical model for the use case you chose. This model should include relations among the “content” (things) and application of information theory and architecture principles (e.g. interfaces). Include diagrams and a (minimum) one page text description of your architectural design and relation to information model. (7%)

4. Prototype implementation. Discuss and explain all considerations and the decisions you made and what reference materials you used and relate them to the functional and non-functional requirements of the use case. Include mock-ups, architectural plans and related materials. Discuss what informal (formative) evaluations the team made of the prototype(s) and the implications/ actions taken (e.g. changes in use case scope, specific goal(s), etc.). Minimum one page text and diagrams. (6%)

5. Conclusion and Future Work (1%)

Write a conclusion describing your overall project implementation. You may add a future work section explaining the possible plans on improving or extending your project to the next level in the future and describing any suggestions for future work. Minimum half a page.

6. References (1%)

Make sure to include ALL the references, research papers, news articles, blog posts, webpages, notes, etc... Make sure to use reference numbering and have the reference numbers throughout your project report (properly cite them using the references). You can choose any referencing style (MLA, Chicago, etc..) that you choose, but make sure to be consistent when you list the references.

7. Online oral group presentation of the results for questions 1, 2,3, 4 and 5. The presentation should be ~ 15 minutes in length, followed by questions/ answers. Your grade will be assessed on demonstration of learned skills in information theory, design and architecture and their application to your use case. All members of the team should speak about equally during the presentation. (10%).