PROTOTYPING PROJECT

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CIS 239.001

Modified Essential BUC – Article Search Process

Business Event Name:
Academic wants to initiate literature review

Business Use Case Name:
Article Search Process

Trigger:
Academic decides on a broad research objective or research question.

Pre-Conditions:

- **Academic has access to at least one academic research database**
- **Academic holds an active university library account**

Interested Stakeholders:

- **Academic researcher**
- **Collaborating researchers**
- **University library staff**

Active Stakeholders:

- **Academic researcher**

Modified Essential BUC – Article Search Process Cont.

Normal Case Steps	Alternate Case Steps	Exception Case Steps
1. Academic defines a list of keywords based on the research objective.	1. Initial keywords yield limited results; academic revises keywords.	1. No results found; academic reconsiders the research objective.
2. Academic searches for articles using identified keywords in a research database.	2. Academic uses institutional access tools to locate unavailable articles.	2. Article access restricted; academic skips or seeks alternative source.
3. Academic reviews article titles and abstracts to assess relevance.	3. Academic extends search beyond the initial result pages.	3. Research database is temporarily unavailable; academic retries later.
4. Academic saves or downloads relevant articles or records citations.	4. Academic notes citation information for later retrieval.	4. Download fails due to technical issues; academic retries.
5. Academic continues this process until a sufficient number of relevant articles are gathered.		

Modified Essential BUC – Article Analysis Process

Business Event Name:
Academic wants to perform article analysis

Business Use Case Name:
Article Analysis Process

Trigger:
Academic has gathered a sufficient number of articles for review

Pre-Conditions:

- Articles are available for review (either downloaded or cited)
- Academic has access to a tool for recording and organizing article data

Interested Stakeholders:

- Academic researcher
- Collaborating researchers

Active Stakeholders:

- Academic researcher

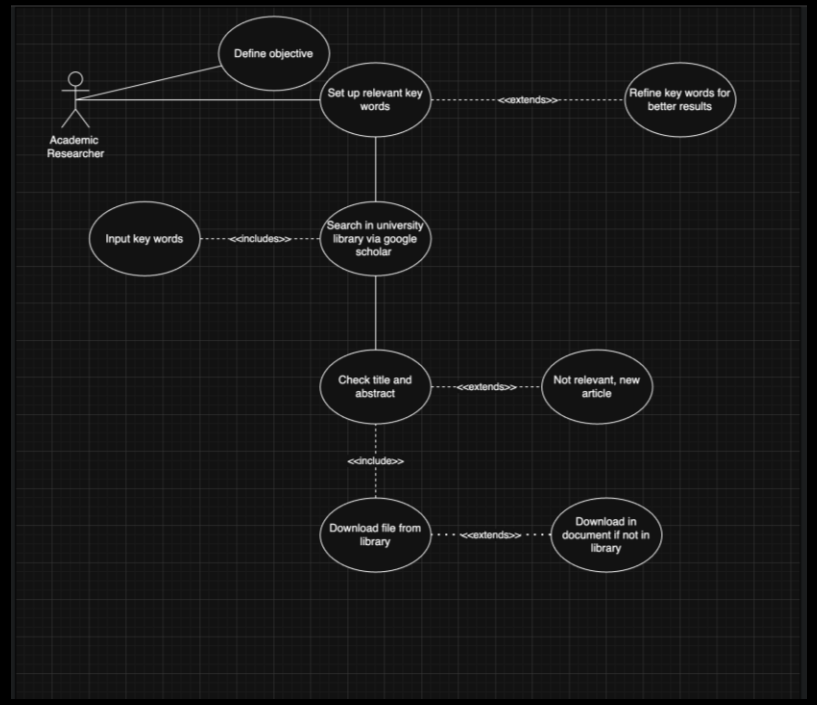
Modified Essential BUC – Article Analysis Process Cont.

Normal Case Steps	Alternate Case Steps	Exception Case Steps
1. Academic opens a tool to record article information.	1. Academic uses a different tool if the preferred one is unavailable.	1. Tool crashes; academic restarts and attempts data recovery.
2. For each article, academic documents relevant attributes (e.g., title, authors, date, research question, methodology, findings, notes).	2. Article is deemed irrelevant and excluded from the analysis.	2. Article has missing information; academic research or skips it.
3. Academic completes the data recording process for all relevant articles.	3. Collaborator suggests adding more fields or data points; academic updates records.	3. File is lost or corrupted; academic restores from backup.
4. Academic shares the collected analysis with collaborators for discussion.		

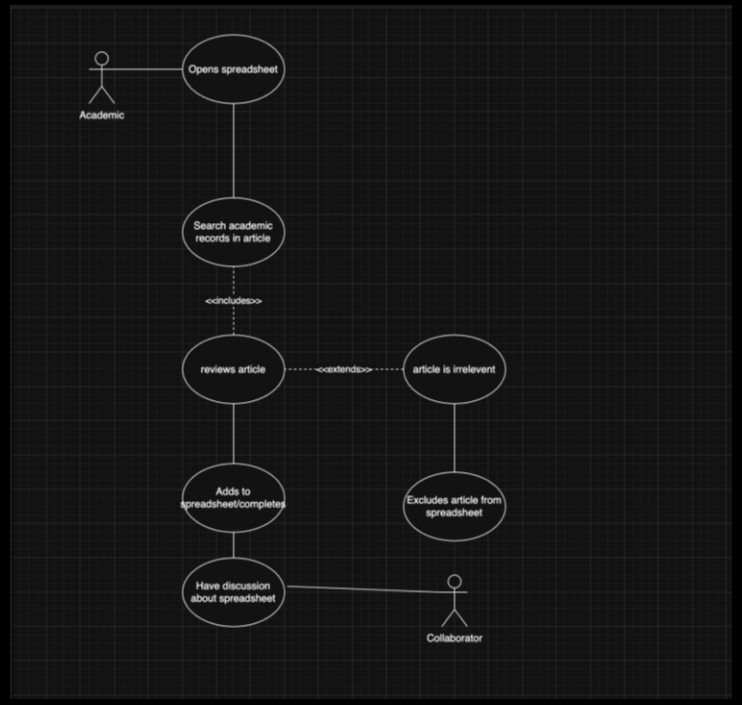
Details of Strategy used to develop Prototype

We decided to use a lo-fi prototyping approach for fast feedback, and more productive time used. Constantly getting quick feedback from stakeholders and answering questions that can lead to further improvement in the process and prototyping. We created sketches to model the process. When brainstorming different diagrams, we ultimately decided to create a Use Case diagram. While it may be beneficial for cases with many stakeholders, it is the best option for low complexity, low stakeholder processes. Use case diagrams efficiently capture interactions between one or two stakeholders while ACD are better suited to illustrate workflows with a multitude of stakeholders and a more complex process.

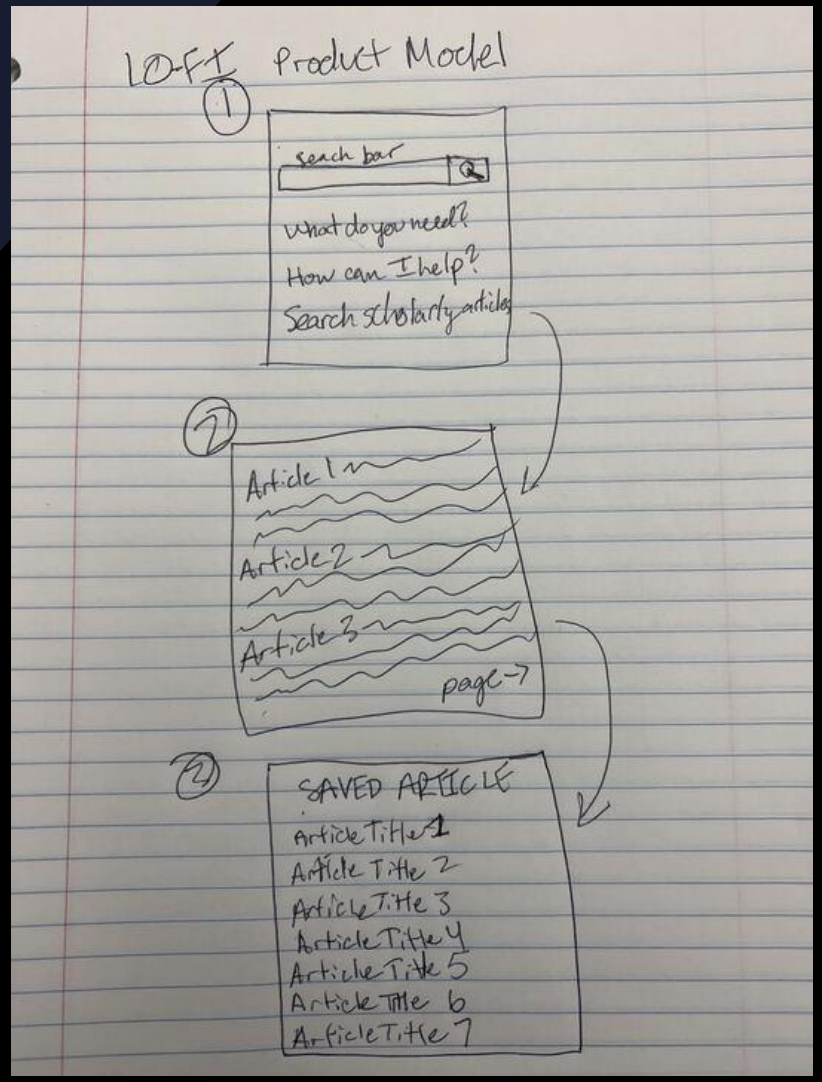
Outcome of the Prototyping Effort – Use Case Diagram



Article Search Process



Article Analysis Process



Outcome of the Prototyping Effort – Lo-Fi Approach

Explanation:
1- Search bar for academic research
2- List of searched articles
3- Articles saved for topics pertaining to the spreadsheet

We chose lo-fi approaches for these reasons:

•Fast feedback on core workflows from stakeholders (What do we need to change/include/upgrade/delete/etc.)

•No coding required; focuses on functionality over aesthetics and fancy products that can be reserved for the end of the process model, not at the beginning.

•Aligns stakeholders early before investing in development while saving the team time that would be wasted created longer more developed products/prototypes

PUC: Article Search Process

Product Event Name: Academic wants to initiate literature review

Product Use case Name: Article Search Process

Trigger: Academic decides on a broad research objective or research question

Pre-Conditions:

- Academic has access to at least one academic research database
- Academic holds an active university library account

Actor: Academic researcher, collaborating researchers

PUC: Article Search Process Cont.

Normal Case Steps	Alternate Case Steps	Exception Case Steps
1. Product allows academic to defines a list of keywords based on the research objective.	1. Initial keywords yield limited results; Product allows academic to revises keywords.	1. Product fail to find result; academic reconsiders the research objective.
2. Product allows academic to searches for articles using identified keywords in a research database.	2. Product allows academic to uses institutional access tools to locate unavailable articles.	2. Article access restricted; product allows academic to skips or seeks alternative source.
3. Product allows academic to reviews article titles and abstracts to assess relevance.	3. Product allows academic to extends search beyond the initial result pages.	3. Research database is temporarily unavailable; product allows academic to retries later.
4. Product allows academic to saves or downloads relevant articles or records citations.	4. Product allows academic to notes citation information for later retrieval.	4. Download fails due to technical issues; Product allow academic to retries.
5. Product allows academic to continues this process until a sufficient number of relevant articles are gathered.		

PUC: Article Analysis Process

Product Event Name: Academic wants to perform article analysis

Product Use case Name: Article Analysis Process
Trigger: Academic has gathered enough articles for review
Pre-Conditions:

- Articles are downloaded or citations are saved
- Spreadsheet tool is available
- Actors: Academic researcher, collaborating researchers

PUC: Article Analysis Process Cont.

Normal Case Steps	Alternate Case Steps	Exception Case Steps
1. Product allows Academic to open sheet to record article details	1. Product allows academic to use a pre-existing spreadsheet template provided by the product	1. Tool crashes; product allows academic restarts and attempts data recovery.
2. Product allows academic to search academic records: Title, Authors, Publication Date, Research Question, Methodology, Outcome, Comments	2. Product goes beyond primary academic records to find sufficient articles	2. Article metadata unavailable or improperly formatted; manual entry from academic required
3. Product reviews for relevant articles	3. . Product finds article irrelevant, continues its search	3. Product fails to retrieve articles due to network issues or database access error
4. Product allows academic to insert into sheet	4.Product allows a bulk-import of multiple articles into the spreadsheet with pre-filled metadata	4. Product fails due to insert high volume files into spreadsheet
5. Product allows academic to share with collaborator for discussion	5. Product allows export as CSV or PDF and uploads to Google Drive for collaborator to have a copy of the sheet	5. Sharing fails due to access restrictions

Resources

We used DeepSeek and ChatGPT as our LLMs to aid us in this project.

LLM Transcript

Click LLM to view script