الكلية الجامعية
للعلوم التطبيقية
رائـــدة الإبـــداع

Statement of Needs for

Academic Paper Management System

Software Engineering Project

By Students:

Hebatallah AbuHarb – 220210448
Shahd El-Thalathini – 220210527
Salma Shaheen – 220210654

Heba:
Hi, I'm Heba, and I'm here with Shahd and Salma. We're a team of software analysts. We're meeting with Professor Ahmed, who oversees academic research at the university. Hi, Professor Ahmed!

Professor Ahmed:
Hello, Heba, Shahd, Salma. Nice to meet you!

Heba:
Thanks for meeting with us today. We understand that your department is looking to build a system to manage academic papers. Before we dive into specifics, could you tell us about your current process?

Professor Ahmed:
Sure! Right now, papers are stored in both physical and digital formats. The digital ones are scattered across shared drives and sometimes on personal cloud accounts. Admin staff manually enter the paper details into spreadsheets. It's inefficient, hard to track papers, and metadata is often missing or inconsistent.

Shahd:
That sounds like a frustrating and error-prone system. How do researchers usually share or find papers?

Professor Ahmed:
Mostly through email or cloud links. There's no real organization, and version tracking is a mess. Finding a specific version of a paper or even the latest one is difficult.

Professor Ahmed:
we are facing a problem on controlling the different versions of the same paper. When a researcher updates a paper, we put a huge effort to keep track of these updates and allowing all users to access these new versions. This is really hard process to do manually, I would like to see a kind of automatically control of this process.

Salma:
Oh, it's really hard to control all of versions and updates manually. So, we'd like to suggest is to use AI to support version control by comparing different versions of the same paper. Using AI not just control the process, but also we can add features like highlighting changes, and alerting users when a new version is available.

Professor Ahmed:
Sounds really promising, that will reduce confusion and ensure everyone is referencing the right version.

Heba:
Okay, so last we talked, you were talking about integrating AI to the system. What also you are looking for?

Professor Ahmed:
There are three main requirements that I envision. The first is about what user sees at the interface he uses. We mainly need three different interfaces: one for the researcher, one for admin or editor, and the last interface is for students and readers.

So, simply the researcher interface should allow him to manage and submit papers. It also should show the papers in progress, under review, and published ones. And give the ability to upload new papers and update existing ones.

Shahd:
Clear, one of the things we'd like to introduce in the researcher interface is AI-powered metadata extraction and categorization. When a researcher uploads a paper, the system can scan the document and automatically fill in the title, keywords, abstract, and even suggest appropriate categories based on content.

Professor Ahmed:
That would save us a ton of time. Right now, the admin staff has to do all of that manually.

Salma:
Ok, what your thoughts about the other two interfaces?

Professor Ahmed:
About the students and readers interface, I imagine a simplified interface focused on paper discovery and reading. Access to search, recommendation, and saved papers. In addition to the ability to create personal collections of papers.

The last interface is the admin \ editor one. Admin is responsible for monitoring all system activities. So, a comprehensive dashboard for monitoring activities should be included in the interface. Additionally, access to analytics and reporting features, user management capabilities, and configuration settings for the system.

Heba:
So to recap, we have three main interfaces so far, each one have it's own capabilities and features.

Shahd:
Ok, talking about the users interface, For searching, we're planning a smart, AI-based search engine. It would go beyond exact matches and understand context. For instance, if someone searches for "deep learning in medicine," the system can suggest related papers even if they don't include that exact phrase.

Professor Ahmed:
That's exactly what we need. Sometimes relevant papers are missed just because the keywords don't match.

Salma:
And it gets better. The system can also recommend related papers to users based on their reading and submission history, like a research discovery assistant.

Professor Ahmed:
That would be extremely helpful for keeping up with work from other departments.

Heba:
There's also the matter of citation generation. We can let the system automatically generate citations, and even suggest papers that might be missing from the bibliography.

Salma:
To support both researchers and students, we propose adding an AI-powered chatbot. It can answer questions, guide users through paper submission, or help them locate documents in the system.

Professor Ahmed:
Wow, A chatbot would make the system much more user-friendly, but let's say it's not on the scope of the project we had in mind for this period, maybe in the future improvements.

Salma:
Ok. Yeah, that's fine.

Heba:
 We're also can include an automatic summarization feature. Researchers can quickly read AI-generated summaries before deciding whether to dive into a full paper.

Professor Ahmed:
 I really like that. It's tough keeping up with so many papers.

Shahd:
what's your vision about security?

 Professor Ahmed:
 yeah, a really good point to discuss, we surely need a monitoring tool to detect unusual behavior or unauthorized access attempts. I keep it to you to choose the appropriate one for the system.

Shahd:
Sure.

Salma:
And for admin reporting, we suggest providing analytics like paper submission trends by department, peer review turnaround times, and even predictions about emerging research topics.

Professor Ahmed:
 That's great. Having visibility into those patterns will help us make better decisions across the department.

Heba:
So, to wrap up: the system will support streamlined paper submission and metadata handling, intelligent version control, powerful AI-enhanced search and recommendations, automatic citation generation, summarization, strong security, and useful analytics.

Professor Ahmed:
That's a fantastic overview. I appreciate how seamlessly AI is being used not just as add-ons, but as core components that improve everything from efficiency to user experience. This sounds like exactly the system we need.

Shahd:
Yes, to keep things simple for now, we'll have three interfaces that are reading and writing to flat files. No databases. No networking. Just three interfaces.

Professor Ahmed:
 Well... for the MVB, make sure to introduce a basic paper repository with metadata management, simple search functionality, basic version control, and core user roles and permissions.

Salma:
Absolutely, and we'll focus on the core first, then add the interfaces right after. That way we can build up our automated and manual test suite early.

Professor Ahmed:
Makes sense. Any chance I could see the product halfway between now and 12 weeks from now?

Heba:
Sure - let's give the development team 9 weeks to come up with their first release. That might be a little challenging for the interface, so does a text-based interface make sense to you?

Professor Ahmed:
That's fine. And I'm sure that we didn't cover everything we need in this conversation, so I'm always open for the developers to directly ask me questions.

Shahd:
 Fantastic! They most certainly will ask you questions, I'm sure.

Salma:
Well, anything else, or should we wrap this up?

Professor Ahmed:
It's done for today. Happy to work with you! See you later.

Salma:
Much more, Bye!