Lab 7 | Ecosystem Model & Workflow

Course: INFO5100 Application Engineering and Development

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Work Area lab

1. **Core Concepts: Briefly describe one primary design pattern or concept used in the Workflow Lab and its purpose in supporting workflow.**
   The object model for work requests gives a design pattern where it organizes the flow work requests effectively. It ensures that each request is processed timely and systematically. In simpler terms it gives a structure for the requests, their roles and relationships with different entities in this case organizations like admin, doctor or lab assistant.
   For example, when a doctor updates or requests a lab test, the system notifies the lab assistant or admin immediately making sure that request provides the latest information for better communication in the whole work flow.

2. **Roles and Workflow: Pick one role (e.g., Admin, Doctor, Lab Assistant) and explain how it contributes to the workflow's functionality. Provide a brief example.**
   The doctor's role is central in the workflow. The doctor initiates the medical procedures or test requests which will then it passed on to the other roles like lab assistant or other stuff. When the test requests are issued the lab assistant logins and assigns it to himself and processes them. This role ensures that the workflow moves forward by always having some input that other roles maybe depend on.
   Example: The doc orders a blood test for a patient and the order is sent to the lab assistant and they will collect the sample and process them. Once the results are ready, the lab assistant will send a report back to the doctor for further treatment plan of the patients based on the blood test results.

3. **Real-World Application: Describe a potential real-world scenario where this workflow model could be useful, such as in a university model or pricing model. Mention one modification you'd make to adapt it to that new context.**
   We can use this model for the university model as well as many other models.
   For the university model it can be applied to manage students assignments and deadlines. Professors assign tasks(assignments) to students, who complete and submit their work. The grader (professor or teaching assistants) then reviews and grade the assignment sending

back a final grade to the be reported. This seems simple enough explanation you can see the roles, the workflow in this example.
Modification: One modification would be adding an automated notification system to alert students on when grades are released or the deadlines for the assignment are due. This seems to provide better communication in the overall system. Another modification would be to assign roles in the system that can be adapted from the work request model. The demo showed a workArea page where the appropriate user logs in and does their task.

Ecosystem Model

1. **Project Scope and Complexity: Summarize the Ecosystem model's complexity. How does it differ from the domain models you've learned, and what impact does this complexity have on user interaction?**
   The ecosystem model is a more complex system compared to the domain models we have studied so far. It integrates multiple layers of networks, enterprise and organizations, all of which are independent components and have diverse roles like system admin, Lab assistant, Doctor, etc. and perform tasks across the layers. The complexity of the ecosystem arises when we need to manage all these independent components which are essentially responsible for how the data flows and how users can interact in the system.
   In domain models like university model we focus on the specific areas of functionalities of university like the course registration or seat assignment whereas an ecosystem encompasses multiple domain models in a hierarchical form of interactions making it more dynamic to changes in the structure for modification in the system.
   The ecosystem complexity also helps improve the user interaction by allowing cross-domain interactions. Of course, with the increased interdependencies of each domain and organization within the user interaction becomes challenging without proper data handling or roles.
2. **Interdependencies: Choose one key component of the Ecosystem model and explain its role in the broader workflow, noting how it connects with other parts of the system.**
   One key component of the Ecosystem model is the admin role, which plays a critical role in managing the overall functionality of the system. The admin role is responsible for configuring the enterprise and the hierarchy of objects within. This role connects with other components from database for objects to user interface. For example, the admin can adjust the entire roles organization for how the users interact and thus can improve workflow and efficiency of user interaction.

3. **Scaling and User Experience: Imagine this model was scaled for a larger user base. What is one challenge you foresee, and how might you improve the user experience for scalability?**

Considering the scalability for a larger base, one challenge that may arise is the management of increased data. As more users interact with the system, the volume of of requests and the need for the real-time data can bottleneck the system. For example thousands of lab tests requests may overload the systems workQueue.
Another challenge could be the increased user base itself creating a larger network of roles which might confuse the users about the workflow.
To improve user experience, we can implement more robust file-based databases for data storage and load balancing for network traffic. Furthermore, we can improve better workflows where we prioritize tasks according to the time stamps or severity of the task this can reduce the latency. We could also proceed with improvements in UI by organizing it into distinct packages based on roles such as sysadmin, doc roles and so on. The role specific design allows user to access only relevant information quickly and reducing the latency and better navigation for workflows.