Preliminary technical research

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# Introduction

In this section I will describe my findings for the technologies that will be important throughout this project and are already known to be useful for this project.

# Oracle Campus Solutions

CY2 is known to be basing their products on Oracle, thus I will investigate what it is and how it works to deepen my understanding of their current technologies.

The following overview provides an outline of the various PeopleSoft applications used in managing a higher education institutions’ operations:

1. **PeopleSoft Campus Community**: Centralizes the management of personal and organizational data, including names, addresses, and system IDs. It covers personal information, organizational data, visa processing (SEVIS), and communication tracking (3Cs—communications, checklists, comments).
2. **PeopleSoft Recruiting and Admissions**: Manages the admission process, tracking applicants and prospects, and enabling self-service for prospective students. It includes tools for recruiting, application processing, enrollment management, and automation of tasks like evaluating applications and loading test scores.
3. **PeopleSoft Student Records**: Handles academic information, including course catalogs, class schedules, enrollments, grades, transcripts, and graduation processes. It integrates with other systems to minimize repetitive data entry.
4. **PeopleSoft Academic Advisement**: Tracks student progress toward graduation by analyzing completed courses and remaining requirements. It provides advisement reports and supports what-if scenarios for students to explore potential academic paths.
5. **PeopleSoft Financial Aid**: Supports managing federal and institutional financial aid, automating calculations, budgeting, awards, disbursements, and loan processing. It ensures compliance with regulations and supports various loan and grant programs.
6. **PeopleSoft Student Financials**: Manages billing, receivables, collections, and cashiering. It integrates financial data across systems, allowing users to calculate tuition, create bills, handle payments, refunds, and tax forms.
7. **PeopleSoft Contributor Relations**: A solution for managing alumni relations, fundraising campaigns, and event management. It supports constituent tracking, gift processing, campaign management, and volunteer coordination.
8. **PeopleSoft Campus Self Service**: Provides self-service functionality for students, faculty, alumni, and applicants, allowing them to manage their information, academic records, financial aid, and other transactions independently. (Oracle, n.d.)

Each module supports streamlined processes, integration across departments, and efficient data management. These applications can be optimized further and be used as a base for CY2’s applications. The Oracle campus solutions more important for us is their digital assistant. I will elaborate on it in the Chatbot section.

# Chatbots

## Exploration

Oracle's PeopleSoft Campus Solutions includes a Digital Assistant feature built on the Oracle Digital Assistant platform. This AI-driven tool allows universities to provide students, staff, and faculty with a natural language interface for accomplishing various tasks. (Peoplesoft, n.d.) CY2 based their chatbot based on this feature, thus in this section I take a deep dive into the basics of the Digital Assistant from Oracle. I base this section mostly on (Oracle, n.d.):

1. **Digital Assistants**: These are virtual, AI-powered chatbots that interact with users through conversational interfaces. They streamline access to tasks, such as checking grades, registering for classes, or submitting forms, without users needing to navigate multiple apps or websites.
2. **Skills**: Each digital assistant is composed of several **skills**, which are specialized bots focused on completing specific tasks, such as retrieving student schedules, submitting assignments, or answering administrative queries. Skills can be combined into a comprehensive assistant or deployed independently.
3. **Natural Language Processing (NLP)**: The digital assistant leverages NLP to understand user intents and extract relevant information (entities) from conversations, enabling smooth task fulfilment. For example, it can recognize when a student asks for "next semester's class schedule" and retrieve the correct data.
4. **Flexibility and Integration**: PeopleSoft’s digital assistant can be deployed across multiple platforms, including popular communication tools like Microsoft Teams and Slack, or integrated into web and mobile apps. Additionally, it supports voice interactions through Android, iOS, and web SDKs.
5. **Customization**: Institutions can tailor the digital assistant using skills from Oracle’s **Skill Store** or develop their own, adding unique capabilities that fit their specific needs. The assistant can also support multiple languages, further enhancing accessibility.
6. **Backend Integration**: The assistant integrates with PeopleSoft’s backend systems to ensure that requests like retrieving student information, scheduling, or payments are processed smoothly.

Here’s a more detailed breakdown of the available **skills and features** in Oracle Digital Assistant for PeopleSoft Campus Solutions, giving a clearer sense of their capabilities:

For our goals having a good understanding of their available skills and features would be highly valuable. Especially their LLM Integration module (Oracle).

IntegrationA diagram of a software process

Description automatically generated with medium confidence

Figure 1: Flow of launching a digital assistant with Oracle

# AI integreation

# Bibliography

Oracle. (n.d.). *Campus solutions overview*. Retrieved from https://docs.oracle.com/cd/E56917\_01/cs9pbr4/eng/cs/lsfn/concept\_CampusSolutionsOverview-ab58bf.html#topofpage

Oracle. (n.d.). *Overview of Digital Assistants and Skills*. Retrieved from https://docs.oracle.com/en-us/iaas/digital-assistant/doc/overview-digital-assistants-and-skills.html#DACUA-GUID-386AB33B-C131-4A0A-9138-6732AE841BD8

Oracle. (n.d.). *Using Oracle Digital Assistant.* Retrieved from LLM Integration: https://docs.oracle.com/en/cloud/paas/digital-assistant/use-chatbot/llm-blocks-skills.html#GUID-A197357D-BB8C-4558-8A02-DF471AF12E9A

Peoplesoft. (n.d.). *Digital Assistants (PICASO)*. Retrieved from https://docs.oracle.com/cd/E52319\_01/infoportal/chatbot.html