**5-1 JOURNAL COMPUTER SCIENCE TRENDS**

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SOUTHERN NEW HAMPSHIRE UNIVISERTY

COMPUTER SCIENCE CAPSTONE

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**PART ONE:**

The two trends that I have selected will be Virtual Reality (VR) and Natural Language Processing (NLP).

* What is the significance of each trend?

Virtual Reality and Natural Language Processing are two significant trends transforming the field of computer science. VR has revolutionized various industries by simulating real-world scenarios for training, education, and entertainment in a controlled and safe environment. It can provide users with immersive experiences that allow them to interact with virtual environments. NLP on the other hand, is revolutionizing human-computer interaction by enabling machines to understand and respond to text and spoken words in natural language. It powers virtual assistant like Siri or Alexa to communicate with technology through natural dialogue rather than manual inputs.

* How will each trend change the field of computer science?

The advancement of VR will necessitate innovations in the field of graphics programing and real0time rendering. Computer scientists and developers will need to design more efficient algorithms to handle data loads required for complex VR experiences. Additionally, new programming languages and libraries may be developed specifically for VR development.

Natural Language Processing will bring opportunities in computer science. As NLP becomes more sophisticated, ethical concerns around data privacy, bias, and the responsible use of AI will continue to grow. As a result, computer scientists will focus on developing methods to identify and mitigate bias in NLP models while ensuring fairness and transparency.

* How will each trend change the experience of consumers, workers, or citizens?

For consumers and workers, VR will offer immersive platforms for remote work, social interactions, and culture experiences. It can be used for virtual meetings, museum explorations, or attending events without the need for physical travel to provide citizens with new ways to engage with the world. NLP on the other hand will improve language translations and accessibility features, making content more inclusive and available to non-native speakers and individuals with disabilities.

* How will each trend fit in with your career interest or aspirations?

As an IT specialist in the military, both VR and NLP have significant applications that align with my career goals. VR is widely used in military training and simulations, such as battlefield simulations or mission rehearsals. In my role, I could be involved in technical implementation, troubleshooting, or project management of such simulations. NLP also plays a critical role in intelligence gathering, data analysis, and communication systems. The military often deals with vast amounts of unstructured data, such as reports, and foreign language materials that need to be analyzed quickly. NLP can automate parts of this process by extracting key insights for decision-makers.

* Which course outcomes have you achieved so far, and which ones remain?

By replacing the list-based ingredient storage with a HashMap on last week’s assignment, I successfully optimized the ingredient-matching algorithm in my project. This enhancement demonstrates my ability to implement data structures and algorithms. Although I have tested the app for performance and usability, more rigorous error handling and unit testing are needed. I plan to implement some additional testing strategies to catch potential errors in ingredient scanning and retrieval.

**PART TWO: CS 499 Status Checkpoints for All Categories**

| **Checkpoint** | **Software Design and Engineering** | **Algorithms and Data Structures** | **Databases** |
| --- | --- | --- | --- |
| **Name of Artifact Used** | **Artifact name:** SHOP HEALTHY!  **Origin:** CS 319 UI/UX DESIGN | **Artifact name:**  SHOP HEALTHY!  **Origin:** CS 360 MOBILE ARCHITECTURE AND DEVELOPMENT | **Artifact name:**  SHOP HEALTHY!  **Origin:** CS 360 MOBILE ARCHITECTURE AND DEVELOPMENT |
| **Status of Initial Enhancement** | Revised the initial design concept for the login screen and developed it into a functional login interface using Android Studio. | Developed Barcode application  Added Control Flow Algorithm which request camera permissions before proceeding | PLANNED  NOT COMPLETED |
| **Submission Status** | Submitted with feedback from the instructor | COMPLETED | PLANNED  NOT COMPLETED |
| **Status of Final Enhancement** | Feedback planned but not yet completed applied | Feedback planned but not yet completed applied | Planned but not yet completed |
| **Uploaded to ePortfolio** | WAITING FOR FEED BACK BEFORE UPLOADING | Planned but not yet completed | Planned but not yet completed |
| **Status of Finalized ePortfolio** | Planned but not yet completed | Planned but not yet completed | Planned but not yet completed |