CS 499 Milestone Three - Category Two Artifact Narrative

1. Briefly describe the artifact. What is it? When was it created?

The artifact that I chose for category two is a Java slide show app that was produced in my CS 250: Software Development Life Cycle course which was taken from May 2024 to June 2024. Its purpose is to be a vacation booking tool that presents a top-five destination list. Each listing contains a picture, a short description, and image credits with two buttons to navigate to either the next destination or the previous one.

1. Justify the inclusion of the artifact in your ePortfolio. Why did you select this item? What specific components of the artifact showcase your skills and abilities in software development? How was the artifact improved?

The Java slide show is suitable for my portfolio because it demonstrates my foundational programming skills. My artifact demonstrates a solid grasp of object-oriented principles through class structure and method utilization. Furthermore, the implementation contains event handling, user interface design with Swing components, and the effective use of data structures, specifically a HashMap for efficient data storage and retrieval. The code has been refactored to enhance readability and maintainability. By including this project, I aim to showcase my ability to solve real-world problems through well-structured, efficient, and maintainable code.

Overall the artifact was improved through:

* Elimination of Redundant Code: The code has been refactored to improve readability and maintainability by using Map.of() for creating the maps, reducing redundant code, and adding meaningful comments.
* Data Structure Selection: The use of HashMap instead of a series of if-else statements improves the efficiency and maintainability of the code.
* Improved Code Structure and Readability: Consistent formatting, naming, and the addition of clear and concise comments enhance the code's readability and make it easier for others to understand.

1. Did you meet the course outcomes you planned to meet with this enhancement in Module One? Do you have any updates to your outcome-coverage plans?

Yes, I met the course outcomes I had planned to meet with this enhancement. The enhancements directly address course outcomes related to:

* Course Outcome #2: Design, develop, and deliver professional-quality oral, written, and visual communications that are coherent, technically sound, and appropriately adapted to specific audiences and contexts.
  + The code with its clear structure, comments, and use of meaningful variable names, represents a form of written communication that is professional and easy to understand.
  + The visual output of the slideshow application demonstrates the ability to design and deliver visual communication.
* Course Outcome #3: Design and evaluate computing solutions that solve a given problem using algorithmic principles and computer science practices and standards appropriate to its solution while managing the trade-offs involved in design choices.
  + The choice of using CardLayout, HashMap, and Swing components demonstrates careful consideration of appropriate computing solutions.
* Course Outcome #4: Demonstrate an ability to use well-founded and innovative techniques, skills, and tools in computing practices for the purpose of implementing computer solutions that deliver value and accomplish industry-specific goals.
  + The project utilizes modern Java libraries and techniques, such as Map.of() for concise map creation, and employs a HashMap for efficient data storage and retrieval.

1. Reflect on the process of enhancing and modifying the artifact. What did you learn as you were creating it and improving it? What challenges did you face?

The process of enhancing the category two artifact was a valuable learning experience. Initially, the code relied heavily on if-else statements to manage the image and text for each slide. This approach was functional, but not inefficient and would be difficult to maintain. By introducing a HashMap to store the image paths and descriptions, I learned the importance of selecting appropriate data structures to improve code efficiency and readability. The HashMap significantly reduced code redundancy and made it easier to add or modify slides without altering the core logic. Refactoring the code to use Map.of() for map creation demonstrated the value of utilizing language features. This not only improved code readability but also enhanced its maintainability.

One of the challenges I faced was ensuring the proper alignment between the displayed image and the corresponding text. This required careful consideration of the layout managers and the positioning of UI elements. Through this enhancement process, I deepened my understanding of core Java concepts, including object-oriented programming, data structures, and UI design. I also learned the importance of code refactoring and the value of choosing the right tools and techniques to improve code quality and maintainability.