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| **SCHOOL OF COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE** | | | | | **DEPARTMENT OF COMPUTER SCIENCE ENGINEERING** | | | | |
| **ProgramName:**B. Tech | | | | **Assignment Type: Lab** | | | **AcademicYear:**2025-2026 | | |
| **CourseCoordinatorName** | | | | Venkataramana Veeramsetty | | | | | |
| **Instructor(s)Name** | | | | |  | | --- | | Dr. V. Venkataramana (Co-ordinator) | | Dr. T. Sampath Kumar | | Dr. Pramoda Patro | | Dr. Brij Kishor Tiwari | | Dr.J.Ravichander | | Dr. Mohammand Ali Shaik | | Dr. Anirodh Kumar | | Mr. S.Naresh Kumar | | Dr. RAJESH VELPULA | | Mr. Kundhan Kumar | | Ms. Ch.Rajitha | | Mr. M Prakash | | Mr. B.Raju | | Intern 1 (Dharma teja) | | Intern 2 (Sai Prasad) | | Intern 3 (Sowmya) | | NS\_2 ( Mounika) | | | | | | |
| **CourseCode** | | | 24CS002PC215 | **CourseTitle** | | AI Assisted Coding | | | |
| **Year/Sem** | | | II/I | **Regulation** | | R24 | | | |
| **Date and Day**  **of Assignment** | | | Week4 - Wednesday | **Time(s)** | |  | | | |
| **Duration** | | | 2 Hours | **Applicableto**  **Batches** | |  | | | |
| **AssignmentNumber:9.3**(Present assignment number)/**24**(Total number of assignments) | | | | | | | | | |
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|  | **Q.No.** | **Question** | | | | | | ***ExpectedTime***  ***to complete*** |  |
|  | 1 | Lab 8: Documentation Generation: Automatic documentation and code comments  **Lab Objectives:**   * To understand the importance of documentation and code comments in software development. * To explore how AI-assisted coding tools can generate meaningful documentation and inline comments. * To practice generating function-level and module-level docstrings automatically. * To evaluate the quality, accuracy, and limitations of AI-generated documentation. * To develop a small automated tool for documentation generation in Python..     **Lab Outcomes (LOs):**  After completing this lab, students will be able to:   * Apply AI-assisted coding tools to generate docstrings and inline comments for Python code. * Critically analyze AI-generated documentation for correctness, completeness, and readability. * Create structured documentation (function-level, module-level) following standard formats. * Design and implement a mini documentation generator tool to automate code commenting and docstring creation.   **Task Description#1 Basic Docstring Generation**   * Write python function to return sum of even and odd numbers in the given list. * Incorporate manual **docstring** in code with Google Style * Use an AI-assisted tool (e.g., Copilot, Cursor AI) to generate a docstring describing the function. * Compare the AI-generated docstring with your manually written one.   **Expected Outcome#1:** Students understand how AI can produce function-level documentation.  **Code:**    **Output:**    **Manual docstring:**  *"""*  *Calculates the sum of even and odd numbers in a list.*  *Args:*  *numbers (List[int]): A list of integers.*  *Returns:*  *Tuple[int, int]: A tuple containing the sum of even numbers and the sum of odd numbers.*  *"""*  **Cursor docstring:**    **Output:**    **Compare:**  *Manual docstring is better because it uses modern Python type hints (List[int], Tuple[int, int]) and is more concise. The current docstring has an example section but uses outdated lowercase type hints (list, tuple) and more verbose descriptions.*  **Task Description#2 Automatic Inline Comments**   * Write python program for **sru\_student** class with attributes like name, roll no., hostel\_status and **fee\_update** method and **display\_details** method. * Write comments manually for each line/code block * Ask an AI tool to add inline comments explaining each line/step. * Compare the AI-generated comments with your manually written one.   **Expected Output#2:** Students critically analyze AI-generated code comments.  **Code:**    **Output:**    **Manual:**    **Cursor ai:**    **Output:**    **Compare:**   1. *Coverage: Both files comment nearly every line.* 2. *Clarity: ai uses precise, action-oriented comments; task\_2a.py often uses generic phrases.* 3. *Accuracy: ai describes what each line does; manual comments sometimes mislabels prints and conditions as “attributes” or “define the condition.”* 4. *Consistency: ai is consistent in tone and specificity; manual varies and repeats “define the attributes.”*   **Task Description#3**   * Write a Python script with 3–4 functions (e.g., calculator: add, subtract, multiply, divide). * Incorporate manual **docstring** in code with NumPy Style * Use AI assistance to generate a module-level docstring + individual function docstrings. * Compare the AI-generated docstring with your manually written one.   **Expected Output#3:** Students learn structured documentation for multi-function scripts  **Manual:**    **Cursor ai:**      **Compare:**   * *manual: No module docstring.* * *ai: Present. Title “Calculator Module,” brief description, mentions input validation/divide-by-zero handling, includes author/date.* * *manual is more formal/structured; ai is shorter, with a module overview and metadata. Functionally, both docstring sets convey the same behavior and types.*   **Push documentation whole workspace as .md file in GitHub Repository**  **Note: Report should be submitted a word document for all tasks in a single document with prompts, comments & code explanation, and output and if required, screenshots** | | | | | | Week4 - Wednesday |  |