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BAGONG PILIPINAS

DATA STRUCTURES AND ALGORITHMS (CC 104)
PROJECT AND TERM PAPER
(1st Semester A.Y. 2024-2025)

I. PROJECT

Instructions:

1. Select an algorithm in which you are interested. Only one algorithm per group and no two groups should have the same domain. Below is the list of algorithms you can choose from:
    a. Levenshtein Distance
    b. Dijkstra's Algorithm
    c. A* Search Algorithm
    d. Kruskal's Algorithm
    e. Floyd-Warshall Algorithm
    f. Bellman-Ford Algorithm
    g. Knuth-Morris-Pratt (KMP) Algorithm
    h. Rabin-Karp Algorithm
    i. Traveling Salesman Problem (TSP) Algorithm
    j. Term Frequency-Inverse Document Frequency
    k. Jaccard Index
    l. Cosine Similarity
    m. Longest Common Subsequence (LCS)
    n. Smith-Waterman Algorithm
    o. Needleman-Wunsch Algorithm

2. You are task to make a code using your preferred programing language but not limit to C++, Java, and Python.

3. The code should be well-documented, with comments clearly explaining the logic and execution steps using appropriate comment symbols syntax of chosen programming language.

II. TERM PAPER

Literature Review Title:

A Literature Review Term Paper about the Application of {{ ALGORITHM }} in {{ DOMAIN }}

Instructions:

1. Select a domain in which you are interested and believe your selected algorithm could be applied effectively. Examples of domains are healthcare, education, e-commerce, social media, or any other area of your choice.

2. Conduct an extensive literature review to identify relevant research articles, academic papers, and scholarly resources that discuss the application of the algorithm within your chosen domain.

3. Summarize and synthesize the applications, key findings, methodologies, challenges, and trends from the selected literature. Analyze how the algorithm have been utilized to address a specific problem or extract valuable insights within your chosen domain.

4. Identify gaps or areas where further research is needed within your domain. What questions remain unanswered? Are there emerging trends or technologies that could revolutionize the field?

III. PROJECT AND TERM PAPER REQUIREMENTS

Requirements:

1. **Group Formation:** The members of your group are the same as the members of your group for the Activities.

2. **Literature Search:** Utilize academic databases, online libraries, and other resources to gather relevant research articles and papers. Make sure to include a diverse range of sources. At least 10 literature or citations.

3. **Paper Format:** Prepare a well-structured term paper that includes but is not limited to an abstract, introduction, literature review, discussion of findings, identification of gaps, and suggestions for future researchers. Properly cite using an IEEE/ACM citation style.

4. **Submission:** The deadline will be on ***December 20, 2024*** and will be submitted through email (jarrian.vince.gojar01@sorsu.edu.ph) with the subject: *"CC 104 Project and Term Paper – Group 0 – MemberSurname1, MemberSurname2, MemberSurname3, MemberSurname4"*. Submit a ZIP file with the name ***CC_104-DSA-PTP-Group_0-Surname1_Firstname1,Surname2_Firstname2,Surname3_Firstname3,Surname4_Firstname4.zip*** which contains the following files:
    a. The Code (.java, .cpp, or .py)
    b. Literature Review (.docx)
    c. Literature Review (.pdf)

Assessment:

Your paper will be evaluated based on the thoroughness of your literature review, the quality of your analysis, and the clarity of your term paper (*see Table 1 below)*. The paper will also be checked for plagiarism and AI generation through the Turnitin platform. **Only 15% of plagiarism levels will be accepted.** Groups having paper with **plagiarism points higher than 15% will receive a low to failed grade** on their project or term paper. **Failure to comply will be given a grade of 0** on both Term Paper and Project. **Late submissions will be accepted, but grade deductions will be applied.**

CRITERIA	Excellent (90-100%)	Good (75-89%)	Satisfactory (60-74%)	Needs Improvement (Below 60%)
Code Implementation	Code is fully functional, efficient, and well-optimized; follows best practices with no errors; well-documented with clear comments.	Code is functional with minimal errors, mostly efficient; follows most best practices; documentation is mostly clear.	Code runs with some issues; may lack efficiency; documentation is unclear in some areas.	Code does not run as intended or has major issues; inefficient; lacks or has poor documentation.
Project Completeness	All requirements met or exceeded, with extra features or enhancements; innovative application of the algorithm.	All requirements met with minor enhancements; demonstrates a good application of the algorithm.	Meets most requirements with few errors; basic application of the algorithm with limited innovation.	Major requirements missing; lacks a meaningful application of the algorithm.
Literature Review Quality	Extensive review with 10+ scholarly sources; thoroughly analyzed applications, methodologies, challenges, and trends in chosen domain.	Sufficient review with 8-9 sources; adequately discusses applications, methodologies, and trends with some analysis.	Limited review with 5-7 sources; basic discussion of applications and trends; lacks in-depth analysis.	Minimal review with fewer than 5 sources; lacks relevant analysis or depth; missing key areas.
Analysis and Insights	Insightful synthesis of literature; effectively identifies gaps, challenges, and trends; strong critical thinking and original insight.	Good synthesis with some original insight; identifies some gaps and trends; demonstrates critical thinking.	Basic synthesis; some gaps and trends identified but lacks depth or critical analysis.	Minimal synthesis or critical analysis; fails to identify key gaps, trends, or provide original insight.
Paper Structure and Clarity	Well-organized, logical flow; includes abstract, introduction, discussion, and future suggestions; clear, concise, and professional.	Well-organized with minor issues in flow; includes all sections; generally clear with minor errors in clarity.	Basic structure with some organization issues; includes most sections; clarity issues present throughout.	Poorly structured, lacks sections or logical flow; difficult to follow; frequent clarity issues.
Citation and Formatting	Proper IEEE/ACM citation style used with zero errors; adheres strictly to format guidelines; clear and professional presentation.	Proper citation style used with few errors; follows format guidelines with minor deviations; presentation is clear.	Inconsistent citation style with several errors; does not fully follow format; presentation has clarity issues.	Incorrect or missing citations; does not follow format guidelines; unprofessional presentation.

Originality and Integrity	15% or less similarity score; highly original with no AI-generated content.	15% or less similarity score; minimal AI-generated content, if any, with solid originality.	Similarity score slightly above 15% but still acceptable; some originality concerns.	Similarity score significantly above 15% or confirmed AI generation; originality concerns present.

Table 1. Rubrics for Project and Term Evaluation