IDEAE OVERVIEW:

Objective: To survey recent research literature in a specific topic area within advanced data management.

Scope: Choose a focused research topic within advanced database management.

Suggested topics:
1. **Query Processing and Optimization in Federated databases**
   Investigate the process of executing queries across multiple, autonomous, and heterogeneous databases that are integrated into a federated system
2. **Machine Learning Integration in Database Management Systems**
   Explore integrating machine learning techniques into database management systems for tasks such as query optimization.
3. **Data integration in federated databases schemas**
   Investigate challenges in combining data from multiple, autonomous, and heterogeneous databases into a unified schema.
4. **Query optimization in cloud databases**
   Investigate query optimization techniques to enhance performance in cloud databases.

Tasks:
1. Select a specific research topic from the suggested topics.
2. Conduct a thorough review of recent scholarly literature on the chosen topic.
3. Analyse and synthesize key findings, trends, challenges, and future directions identified in the literature.
4. Organize your findings into a well-structured survey paper following academic conventions.

Deliverables: A survey paper summarizing your literature review findings, including a critical analysis of the state-of-the-art research in the chosen topic area.

RESOURCES:

1. Search various digital libraries for relevant papers, such as KAU digital library, IEEE Xplore, Google Scholar, ACM, Scopus, etc.
2. Determine the survey paper set: search scope and search keywords.
3. The papers selected should be a mix of papers, including the background papers (at least 2) and review papers (at least 6).
4. The papers included in the survey must be recent and published within the last six years.

GUIDELINES:

Surveys require a well-organized layout that demonstrates a sequential flow of ideas. It should exhibit a theme, such as different theoretical approaches, methodologies, or specific issues or concepts that should be discussed cohesively.

1. As a general rule, make sure that your survey presents to the reader a critical and **analytical summary and synthesis of the research problem you are investigating** by comparing and relating different theories, methods, and findings.
2. Make a statement about the scope of your survey.
3. Discuss the Importance and significance of the research problem you are investigating.
4. Discuss basic approaches or mechanisms.
5. Draw your figures to explain techniques.
6. Use tables, figures, examples, and similar elements.
7. Discuss the classification of approaches\mechanisms\techniques. Draw a tree, if possible, to show your classification.
8. Discuss the relative advantages/disadvantages of the classified approaches.
9. Identify the unsolved problems\difficulties, and future research issues.
10. Organize the References.

PAPER LAYOUT:

Your report shall contain the following sections:

1- **ABSTRACT AND KEYWORDS**

2- **INTRODUCTION**
    An introduction to the topic of the survey.

3- **BACKGROUND**
    A general overview of the topic being surveyed/ relevant history on the topic/main definitions

4- **[Body]**
    Paper review and analysis + critical assessment of the work that has been done. This section will follow the classification scheme of the survey paper.
    Write the "body" part of the paper as titled sections and subsections.

5- **OPEN RESEARCH CHALLENGES**
    Discussion

6- **CONCLUSION**
    Discussion of your findings.

7- **REFERENCES**
    A complete and correct list of references.

OTHER NOTES:

1- Plagiarism over 15% and copy-paste will be penalized.

2- The survey paper should be a minimum of 8 pages, **excluding** the "References" section. Exceeding 13 pages (excluding references) will be penalized.

FORMATTING GUIDELINES

1- Font Times New Roman-10 2-
Use 1.5 line spacing.
3- Choose "No space before or after paragraph" in the "line and paragraph spacing" option.
4- Use IEEE citing style.

SUBMISSION:

Submit your reports in PDF format on Bb before the deadline.

ACADEMIC INTEGRITY:

The following acts are considered a form of academic dishonesty, and they will be penalized.

- Using AI tools to generate your work.
- Attributing ideas, text, or research to sources that were not consulted or citing papers that do not support the presented argument.
- Fabrication of Data or Sources.

GRADING RUBRIC:

Criteria		Description	Mark
The scope of the paper and the level of detail.		**Focuses** on the research topic and the DB field. **Provides** thorough and insightful analysis of each surveyed study. **Identifies** and synthesizes trends, patterns, and common themes across the surveyed literature in a nuanced and insightful manner.	**20%**
Body	Comprehensiveness	**Demonstrates** insight into the problem and its solutions. **Surveys** recent literature relevant to the chosen topic. **Covers** a diverse range of research studies, methodologies, and findings to provide a comprehensive overview of the subject.	**20%**
	Classification	**Organizes** surveyed literature into coherent categories or themes based on relevant dimensions. **Presents** a structured framework for understanding the surveyed research landscape.	**5%**
	A critical review of current research	**Presents** clear analysis and synthesis. **Provides** a thorough comparison and contrast of reviewed papers and relates them to the research topic.	**20%**
Conclusion		**Provides** succinct and precise conclusions based on the review. **Summarizes** key findings and insights derived from the survey. **Draws** meaningful conclusions regarding the current state of research and future directions.	**5%**
Quality of explanation (your figures, diagram, and charts)		**Includes** own figures, diagrams, charts, etc. **Utilizes** clear and informative visuals to enhance understanding of key concepts and findings. **Ensures** that visuals are appropriately labeled, cited, and referenced within the text.	**10%**
References and correct citation		**Uses** IEEE format accurately and consistently in the paper and on the "References" section. **Includes** a comprehensive list of references cited throughout the paper, adhering to a consistent citation style. **Ensures** accuracy and completeness of reference details.	**5%**
Organization and layout		**Writes** in formal scientific language. **Demonstrates** logical and subtle sequencing of ideas through welldeveloped paragraphs; transitions are used to enhance organization. **Follows** formatting and organization guidelines. **Presents** the paper in a well-organized and logically structured manner, with clear sections and subheadings. **Maintains** coherence and flow between sections to facilitate ease of reading and comprehension.	**10%**

| Language and grammar | **Demonstrates** proficiency in written communication with clear and concise language. | 5% |
| | **Ensures** grammatical accuracy, proper sentence structure, and coherent paragraph development. | |