School of Computing

ST1501 Data Engineering CA1 AY2024/2025 Semester 1

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| Class | DAAA/FT/2B/23 |

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| a) Database Design (Enhanced Enty Relationship Diagram) | 40% |
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| b) Database Design (Database Diagram) | 15% |
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| c) Database Creation | 10% |
| Submit all your table creation SQL codes in a single file named "create\_tables.sql" |  |

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| d) Queries |  |  |
| Remember to submit all your SQL queries in a single file named "queries.sql" as well | |  |
| Q1 |  | 4% |
| SQL Statement:  SELECT  (SELECT COUNT(\*) FROM Models WHERE ParentModelID IS NULL) AS FreshModel,  (SELECT COUNT(\*) FROM Models WHERE ParentModelID IS NOT NULL) AS FinetunedModel; | |  |
| Results: | |  |

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| Q2 | 5% |
| SQL Statement:  SELECT  MT.ModelType,  COUNT(M.ModelID) AS NumberUnassigned,  CAST(ROUND(AVG(M.Accuracy), 1) AS DECIMAL(10,1)) AS MeanAccuracy,  ROUND(MAX(M.Accuracy), 1) AS MaxAccuracy  FROM  ModelTypes MT  JOIN  Models M ON MT.ModelType = M.ModelType  WHERE  M.ModelID NOT IN (  SELECT ModelID FROM ModelOrderAssignments  )  GROUP BY  MT.ModelType  HAVING  COUNT(M.ModelID) > 0  ORDER BY  MT.ModelType ASC; |  |
| Results: |  |

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| Q3 | 4% |
| SQL Statement:  SELECT  CONCAT(E.FirstName, ' ', E.LastName) AS FullName,  E.Contact,  E.Gender  FROM  Employees E  WHERE  E.EmployeeID IN (  SELECT  MOA.EmployeeID  FROM  ModelOrderAssignments MOA  GROUP BY  MOA.OrderID, MOA.EmployeeID  HAVING  COUNT(MOA.ModelID) > 1  )  ORDER BY  FullName; |  |
| Results: |  |

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| Q4 | 7% |
| SQL Statement:  SELECT  COUNT(\*) AS NumberAccepted  FROM  ModelOrderAssignments MOA  INNER JOIN  Orders O ON MOA.OrderID = O.OrderID  INNER JOIN  Models M ON MOA.ModelID = M.ModelID  LEFT JOIN  OrderModelTypes OMT ON O.OrderID = OMT.OrderID  WHERE  MOA.DateAssigned <= O.CompletionDate  AND (M.ModelType = OMT.ModelType OR OMT.ModelType IS NULL)  AND M.Accuracy >= O.RequiredAccuracy; |  |
| Results: |  |