**DL836 Y2 – Database Management Systems**

**Continuous Assessment 1**

Date: **14/11/16**

CA weight: 25%

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* For this in class test you may use Query Express to form the queries required to solve each of the problems below.
* Please copy and paste your completed SQL query solution from Query Express to the answer column below. If in any case you cannot produce the correct solution, please submit your best attempt at a solution.
* When you are finished, save this document to the appropriate folder in:

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* You may refer to the SQL notes document that you have been provided with.
* This test will be based on the example ‘pubs’ database we were working with in the recent lab classes. An ER diagram for this ‘pubs’ database has been provided at the end of this document for reference.
* You may **not** access **any** other resource on the IADT network or on the Internet during the test. If you do so a mark of 0 may be awarded.

**\*\*\*IMPORTANT: Ensure you select the pubsCA1\_[NUM] database when using Query Express. All hints on the following pages are based on this database.\*\*\***

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| SELECT – WHERE Queries (3 marks each) | | | |
| Question | | Your Answer | Hint |
| 1 | List the title and advance for all books that have an advance in the range $1999 to $2500. | SELECT title, advance FROM titles  WHERE advance BETWEEN 1999 and 2500; | 2 rows; 2 cols |
| 2 | List the first and last names of all authors that have 'n' as the last letter of their last name. | SELECT au\_fname, au\_lname FROM authors  WHERE au\_lname LIKE '%n'; | 4 rows; 2 cols |
| 3 | List the titles of all books that have 'o' as the second letter in their title. | SELECT title FROM titles  WHERE title LIKE '\_o%'; | 3 rows; 1 cols |
| 4 | List the first and last names of all authors that have 'A', 'B', 'C', 'D' or 'R' as the first letter of their name. | SELECT au\_lname, au\_fname FROM authors  WHERE au\_fname LIKE '[A-D,R]%'; | 11 rows; 2 cols |
| 5 | List the title and price of all books that have 'the' in their title and cost more than $20. | SELECT title, price FROM titles  WHERE price > '20' AND title LIKE '%the%'; | 1 rows; 2 cols |
| 6 | List the title and price of all the books. Order the output in ascending order of price, i.e. the cheapest first and most expensive last. Exclude books with a NULL price. | SELECT title, price FROM titles  WHERE price IS NOT NULL ORDER BY price DESC; | 16 rows; 2 cols |
| 7 | List the first names and last names of each employee. Label the columns 'FIRSTNAME' and 'LASTNAME' in your output. | SELECT fname AS 'FIRSTNAME', lname AS 'LASTNAME' FROM employee | 43 rows; 2 cols |
| 8 | From the titles table, calculate for each title the 'Royalty due', which is the **price** multiplied by the **ytd\_sales** divided by the **royalty**. Label the output column 'Royalty due'. Exclude books with a NULL price. | SELECT ((price\*ytd\_sales)/royalty) AS 'Royalty Due' FROM titles  WHERE 'Royalty Due' IS NOT NULL | 16 rows; 1 col |

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| Aggregate functions (4 marks each) | | | |
| Question | | Answer | Hint |
| 1 | Output the number of publishers in the database. | SELECT COUNT(DISTINCT pub\_id) FROM publishers | Ans: 8 |
| 2 | Output the price of the cheapest book. | SELECT MIN(price) FROM titles | Ans: 2.99 |
| 3 | List the type and price of the most expensive book in each book type. | SELECT type, MAX(price) FROM titles  WHERE price IS NOT NULL  GROUP BY type | 5 rows; 2 cols |
| 4 | Output the total book sales, e.g. all of the ytd\_sales values added together. Name the column 'Total sales'. | SELECT SUM(ytd\_sales) AS 'Total Sales' FROM titles | Ans: 97446 |
| 5 | Output the number of unique countries that publishers are based in, i.e. do not count duplicate countries more than once. | SELECT COUNT(DISTINCT country) FROM publishers | Ans: 3 |
| 6 | Output the average price of books excluding books costing less than $20. | SELECT AVG(price) FROM titles  WHERE PRICE >= 20 | Ans: 21.3725 |

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| Sub-Queries (4 marks each) | | | |
| Question | | Answer | Hint |
| 1 | List the title and price of the cheapest book(s). |  | 2 rows; 2 cols |
| 2 | List the titles and prices of the books that are within $5 of the average price. |  | 4 rows; 2 cols |
| 3 | Output the name of the most expensive book from the 'psychology' type. |  | Ans: Computer Phobic AND Non-Phobic Individuals: Behavior Variations |
| 4 | Output the total number of books of type 'popular\_comp'. | SELECT COUNT(type) FROM titles  WHERE type = 'popular\_comp' | Ans: 3 |

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| Joins (6 marks each) | | | |
| Question | | Answer | Hint |
| 1 | List the publisher name, employee last name and state of all employees working for publishers in the state of 'CA'. | SELECT publishers.pub\_name, publishers.state, employee.lname FROM publishers  INNER JOIN employee  ON publishers.pub\_id = employee.pub\_id  WHERE state = 'CA' | 10 rows; 3 cols |
| 2 | List the employee first and last name, and publisher name of all employees working for 'Binnet & Hardley'. | SELECT publishers.pub\_name, employee.fname, employee.lname FROM publishers  INNER JOIN employee  ON publishers.pub\_id = employee.pub\_id  WHERE pub\_name = 'Binnet & Hardley' | 10 rows; 3 cols |
| 3 | List the title and store name of all books stocked in the stores whose store name starts with a 'B'. | SELECT titles.title FROM titles  INNER JOIN sales  ON titles.title\_id = sales.title\_id  INNER JOIN stores  ON sales.stor\_id = stores.stor\_id  WHERE stor\_name LIKE 'B%' | 6 rows; 2 cols |
| 4 | List the title, author last name and price of all books that cost more than the average book price. | SELECT titles.title, authors.au\_lname, titles.price FROM titles  INNER JOIN titleauthor  ON titles.title\_id = titleauthor.title\_id  INNER JOIN authors  ON authors.au\_id = titleauthor.au\_id  WHERE price >= (SELECT AVG(price) FROM titles) | 14 rows; 3 cols |
| 5 | List the publisher names and titles of the books they have published. Include publishers that have not published any books. | SELECT titles.title, publishers.pub\_name FROM titles  INNER JOIN publishers  ON titles.pub\_id = publishers.pub\_id  INNER JOIN sales  ON titles.title\_id = sales.title\_id  WHERE qty IS NOT NULL | 23 rows; 2 cols |
| 6 | List the names and total number of employees of all publishers that employ more than 3 employees | SELECT publishers.pub\_name, COUNT(employee.emp\_id) AS ‘employees’ FROM publishers  INNER JOIN employee  ON publishers.pub\_id = employee.pub\_id  GROUP BY publishers.pub\_name  HAVING COUNT(emp\_id) > 3 | 4 rows; 2 cols  I.e.  pub\_name employees  Algodata… 10  Binnet & H… 10  Lucerne… 7  New Moon… 10 |

