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| Application Developer |
| Course Code: SQLP  Course Name: SQL Programming  Version: 2014  Assignment: Final Project |

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| Materials and Resources | |
| Textbook | 1. The Language of SQL  Cengage Learning  ISBN 139781435457515  2. Microsoft SQL Server 2012 A Beginners Guide  McGraw Hill  ISBN 9780071761604 |
| Software | SQL Server 2012  MySQL |

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| Assignment Description |
| This assignment is a practical demonstration of the knowledge and skills gained throughout this course. The final project is composed of real world situations where SQL databases are needed. You will be asked to work with data sets, to show relationships between tables and also to create databases from varying formats. |

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| Task 1 Part 1 - Select | /25 Marks |
| 1. Create a new database with the following table: | /16 |

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| **State** | **Capital** | **Population** | **Area** | **Famous People** | **Nickname** | **Union** | **State Bird** |
| Alaska | Juneau | 479,000 | 586,412 | Joe Juneau | Last Frontier | 1959 | Ptarmigan |
| Arizona | Phoenix | 2,963,000 | 113,909 | Geronimo | Grand Canyon State | 1912 | Cactus Wren |
| California | Sacramento | 25,174,000 | 158,693 | Jack London | Golden State | 1850 | Quail |
| Florida | Tallahassee | 10,680,000 | 58,560 | Joseph Stilwell | Sunshine State | 1845 | Mockingbird |
| Hawaii | Honolulu | 1,023,000 | 6,450 | Don Ho | Aloha State | 1959 | Goose |
| Idaho | Boise | 989,000 | 83,557 | Sacajawea | Gem State | 1890 | Bluebird |
| Kansas | Topeka | 2,425,000 | 82,264 | Amelia Earhart | Sunflower State | 1861 | Meadowlark |
| Maine | Augusta | 1,146,000 | 33,215 | Henry Longfellow | Pine Tree State | 1820 | Chickadee |
| Nebraska | Lincoln | 1,597,000 | 77,227 | Fred Astaire | Cornhusker State | 1867 | Meadowlark |
| New Jersey | Trenton | 7,468,000 | 7,836 | Stephen Crane | Garden State | 1787 | Goldfinch |
| New York | Albany | 17,667,000 | 49,576 | Walt Whitman | Empire State | 1788 | Bluebird |
| Ohio | Columbus | 10,746,000 | 41,222 | Bob Hope | Buckeye State | 1803 | Cardinal |
| Washington | Olympia | 4,300,000 | 68,192 | Bing Crosby | Evergreen State | 1889 | Goldfinch |
| Wisconsin | Madison | 4,751,000 | 56,154 | Spencer Tracy | Badger State | 1848 | Robin |

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| 1. List the states that entered the union between 1850-1920, inclusive ( hint: type in 1850...1920). | /3 |
| 1. List the states with areas of less than 60,000 square miles that also have more than 10,000,000 people. | /3 |
| 1. Now arrange the entire data base by population from smallest to largest – capture your results into a temporary table and copy the contents to a new table called Famous\_sort . | /3 |

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| Task 1 Part 2 – Database Design | /50 Marks |
| In this section, you will be given a complete description of the requirements specification of a given enterprise. From the specifications, you will have to demonstrate an ability to use the methodologies that we have tackled in the course so far. More formally, based on specifications below, in this project you will have to: |  |
| 1. Develop a diagram representing the tables and the relationships among them. | /10 |
| 2. Create the tables and their attributes (i.e., the schemas) in Microsoft SQL 2008. | /10 |
| 3. Create 10 sample records within the appropriate tables. | /10 |
| 4. Set up indexes, and configure auto indexing, shrinkage, and backups as you feel necessary. | /10 |
| 5. Ensure that you have a redundant copy of the database on another computer (i.e. log shipping or replication or mirroring) to provide high availability | /10 |

For this project, we will describe the data requirements for a small University Accommodation Office.

**Students.**

The data needed for each full-time student includes id#, name (first and last), home address (street, city, zip-code), date of birth, sex, category (e.g., sophomore, junior, graduate), nationality, special needs, current status (placed/waiting) and which courses is the student registered for. Optionally, one may also add additional comments for a particular student.

The student information pertains to those currently renting a room and those who are on the waiting list. A particular student may rent a room either in the hall of residence or student flat.

When a student joins the University, he is assigned a member of staff who acts as his Advisor. The Advisor is responsible for monitoring the student welfare and academic progress throughout his time at the University. The data kept for a students Advisor includes full name, position, name of the department, phone number and office location/number. We assume that there are no two advisors in the same department will have the same name.

**Halls of Residence.**

Each hall of residence has a name, address, telephone number and a manager who supervises the operation of the hall. The halls provide only single rooms which have room number, place number and monthly rent rate.

The place number uniquely identifies each room in all halls controlled by the Accommodation Office and is used when renting a room to a student.

**Student Flats.**

The Accommodation Office also offers student flats. These flats are fully furnished and provide single-room accommodation for groups of two, three or four students. The information held on student flats includes a flat number, address and the number of rooms available in each flat. The flat number uniquely identifies each flat.

**Leases.**

A student may rent a room in a hall or student flat for various periods of time. New lease agreements are negotiated at the start of each academic year with a minimum rental period of one quarter and a maximum rental period of one year (including the Summer quarter). Each individual lease agreement between a student and the Accommodation Office is uniquely identified using a lease number.

The information pertaining to each lease includes the lease number, duration of the lease (in number of quarters), name and the id# of the student, place number or flat number, address details (of the hall or the flat) and the date the student wishes to enter the room, along with the date the student wishes to leave the room.

I**nvoices.**

At the start of each quarter, each student is sent an invoice for the respective rental period. Each invoice has a unique invoice number. The rest of the data include the lease number, quarter, payment due, students full name, students id#, place number or flat number, and the address (hall/flat). Additional data is kept as a Payment, which reflects the invoice number, date of payment, method of payment (cheque, cash, credit card (indicate type)) plus, if needed, the dates the first and second reminders were sent.

**Students Flat Inspections.**

Each flat is inspected by staff on a regular basis to ensure that the accommodation is well maintained. The information recorded for each inspection includes name of the staff member who carried out the inspection, the date the inspection was made, an indication of whether the property was found to be in a satisfactory condition (yes/no), plus additional comments, if needed.

**Accommodation Staff.**

Some information needs to be held for the staff members too, and it includes name (first and last), home address (street, city, zipcode), date of birth, sex, position, (e.g, Hall Manager, Administrative Assistant, Cleaner) and Location (e.g., Accommodation Office or Hall). Here we assume that there are no two staff members having the same name.

**Courses.**

The Accomodation Office also stores a limited amount of information on the course run by the University course number, course title, year, instructor, room number, and department name. Each student is associated with the courses he is registered for. Here we assume that the course number and the department name can uniquely identify a course.

**Contacts.**

For each student, the office keeps a record of a contact person, which includes SSN, name (first and last), relationship with the student, address (street, city, zipcode) and the contact phone number.

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| Task 2 – Database Migration | /25 Marks |
| Files needed for this task Customers.txt, Order Details.txt, Orders.txt, Products.txt |  |
| 1. Your Instructor has given you four files that came from an obsolete database and it is your job to migrate this data into a sql server database. Once the data is added to sql server you need to check the data and setup the relationships between the tables. |  |
| 1. Once you have finished this, create a query that displays :CompanyName, Address, of the customer along with the total for each order that the customer has made. Save this query as a sql script called Question2.sql to your desktop. | /2 |
| 1. Create a View that joins the customers table to the orders table and have the view show CompanyName, Address, City and OrderDate. Save the View as CustomersView. | /2 |
| 1. Once the CustomersView is created query the view to show only Customers from London. | /3 |
| 1. Create a stored procedure will return a list of products based on the parameter values that you pass to stored procedure. Save the stored procedure as ProductSearch. | /3 |
| 1. Create a tabled valued function that takes allows you to pass Coutry name to the function. This function should join the Customers table to the Orders table and you should also be able to filter by Order date (ie Show me a list of Customers from Germany who ordered products between 1996 and 1997) | /3 |
| 1. Create a nonclustered index on the primary key for the Customers Table and Create a clustered index on the CompanyName field of the Customers table. | /4 |
| 1. Provide a list of suitable fields that you could implement full text searching on. | /4 |
| 1. Create a Database Diagram in SQL Server to show the relationships between the tables above. | /4 |

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| Bonus Question – Extend your learning / application challenge | /10Marks |
| 1. Build an asp web site that shows the Orders table and allows you to fliter the Orders table by customerid. The Orders table should be in a GridView and the CompanyName should be visible in the dropdownlist and customerid should be the value passed to the gridview. Remember that this is a bonus question so if you can’t do it move on. | /10 |