PROG8081 Database Management
Winter 2024 Mini Project - Assignment 3 & 4 (Due 9th April)

Smart World Computers (SWC) is a small company in Waterloo that specializes in assembling desktop computers and accessories into "smart bundles" and sell them at a special discount. To simplify the choices for SWC customers, there are four desktop bundles to select based on brand (Dell vs HP) and bundle type (Economy vs Business). SWC also sells tablets and computer parts such as mouse and keyboard that are not part of a "smart bundle".

Here is a sample SWC sales flyer (actual images of items are not exactly as shown below):

Brand	Economy Bundle	Business Bundle
Dell (equipped with **Lenovo** Mouse and **Lenovo** Keyboard)	$125.00 Dell Optiplex Windows 10 Professional Desktop Computer Bundle Intel Core i3 Processor 4GB RAM 500GB Hard Drive... **Dell Eco**	$449.00 Dell OptiPlex 5040 Desktop Computer Bundle with 23.6" Monitor, Intel Core i5, 16GB RAM, 2TB HD, DVD-ROM,... **Dell Biz**
HP (equipped with **HP** Mouse and **HP** Keyboard)	$228.97 HP Desktop Tower Computer Bundle with 22" Monitor, Intel Core i5, 8GB RAM, 2TB HD, DVD-ROM, Windows 10... **HP Eco**	$529.97 $596.22 HP Elitedesk 800G1 Business Desktop PC - Intel Core i5-4570 3.2GHz, 8GB RAM, 240GB SS, Windows 10 Pro 64bit, New... **HP Biz** (with **Lenovo** Camera)

In order to keep information about the purchase activities of SWC's four purchasers, the owner of the company keeps information in an Excel Spreadsheet, part of which is provided below:

Part Number	Supplier	Part Type	Part Description	Purchaser	Desktop Bundle	Purchase Date	Unit Price	Qty
DL1010	Dell	Desktop	Dell Optiplex 1010	Joey	Dell Eco	10/31/2022	$40	25
DL5040	Dell	Desktop	Dell Optiplex 5040	Joey	Dell Biz	10/31/2022	$150	50
DLM190	Dell	Monitor	Dell 19-inch Monitor	Joey	Dell Eco	10/31/2022	$35	25
HP400	HP	Desktop	HP Desktop Tower	May	HP Eco	11/10/2022	$60	15
HP800	HP	Desktop	HP EliteDesk 800G1	May	HP Biz	11/20/2022	$200	20
HPM270	HP	Monitor	HP 27-inch Monitor	May	HP Biz	11/20/2022	$120	20
SM330	Samsung	Tablet	Samsung Galaxy Tab 7" Android Tablet	Troy	N/A	11/30/2022	$110	10
LEN101	Lenovo	Keyboard	Lenovo 101-Key Computer Keyboard	Vinh	Dell Eco, Dell Biz	12/05/2022	$7	50
LEN102	Lenovo	Mouse	Lenovo Mouse	Vinh	Dell Eco, Dell Biz	12/05/2022	$5	50
DLM240	Dell	Monitor	Dell 24-inch Monitor	Vinh	Dell Biz	12/05/2022	$80	80
HPM220	HP	Monitor	HP 22-inch Monitor	Joey	HP Eco	12/10/2022	$45	30
LEN102	Lenovo	Mouse	Lenovo Mouse	Vinh	Dell Eco, Dell Biz	12/15/2022	$5	100
MAX901	Max	Camera	Max Web Camera	Vinh	HP Biz	12/15/2022	$20	40
HP501	HP	Keyboard	HP 101-Key Computer Keyboard	Troy	HP Eco, HP Biz	12/20/2022	$9	100
HP502	HP	Mouse	HP Mouse	Troy	HP Eco, HP Biz	12/20/2022	$6	100

The owner of the company realized that the spreadsheet became long and difficult to maintain. You are hired to design a database (normalize to 3NF), which would replace this spreadsheet. You must keep all the information in the database.

Additional Information that must be included in the database:

- All IDs are numeric and are generated automatically on insert
- Purchaser have first and last names, email, addresses (street number, street name, city, province, country, postal code) and phones
- Each part can be purchased from one supplier only
- Each part belongs to only one "part type" (e.g., "Dell Optiplex 1010" belongs to "Desktop")
- Unit price of each part are the same in all the purchase date mentioned above (i.e., no price fluctuation)

IMPORTANT:
- You must follow the naming convention for database, tables, columns, and constraint names. One point deduction for each violation, up to a maximum of 10 points.
- You must follow the SQL coding standard. One point deduction for each violation, up to a maximum of 10 points.
- You can use functions and stored procedures and introduce variables as part of your SQL script.
- It is a group work, and each team should consist of 4/5 members. You need to present your work on **9th April** in your class with your team members. The assignment is due for submission at 10pm on same day.

PROG8081 Mini Project Marking Sheet

#	Requirement	Marks
1.	If exists, drop the database. Then, create the database named SWC_XX. *Note: Your script should run repeatedly without errors.*	5
2.	Create the proper tables.	10
3.	Allocate columns to the proper tables.	10
4.	Create the proper primary key constraints.	10
5.	Create the proper foreign key constraints.	10
6.	Create check constraints that will require purchaser first name and part description to have at least 3 characters. Add more check constraints as follows: (a) unit price cannot be negative, (b) quantity must be positive. List all the table names and their constraint names (PK, FK, CK) created.	5
7.	Create a default constraint to use Canada as the default country (if not provided). List the default constraint name and its definition.	5
8.	Insert all available data into the tables.	10
9.	Create an index for the purchaser's **phone**. This will help improve the performance when searching records using the phone number. Create a unique index for the purchaser's email. *Test the unique constraint by attempting to insert a new purchaser with an existing email.*	5
10.	Create a view that show purchase details (as many columns from the original spreadsheet *except "Desktop Bundle" column*) plus an "Extended Amount" calculated column. • e.g., The extended amount of HP400 ordered on 10/31/2022 is $900.00 Use the view to display all the purchase details with "Extended Amount". Sort the results by the purchaser's first name, purchase date and part number.	4

11.	Create a view that will calculate and show the total cost for each of the desktop bundles. e.g., **HP Eco** bundle's total cost is **$120**
	
	 Breakdown of total cost calculation (for reference only):
	        HP Desktop Tower $60
	        HP 22-inch Monitor $45
	        HP 101-Key Computer Keyboard $9
	        HP Mouse $6
	
	 Use the view to display the desktop bundles along with their total costs. Sort the results by the desktop bundle name.
	 List the name of the views created.
		6

	Create atleast one trigger and a stored procedure for an useful activity	10
	Create the database diagram for this entire assignment. The diagram must show all the tables and their relationships. Copy the image (use the snipping tool) to a Word document named A4_DBDiagram_XX.docx. To make your submission look professional, use the Snipping tool (**Windows Key + Shift + S**). For details, see: https://support.microsoft.com/en-us/windows/use-snipping-tool-to-capture-screenshots-00246869-1843-655f-f220-97299b865f6b	10
	Total Points	**100**