

CST 115 GROUP ASSIGNMENT
Due date – April 5, 2019 11:69 PM
15%of final mark

Your group of three or four is to develop a conceptual database design for the following description and then to create the database using Oracle.

Required for submission:

1. Submit a **PDF** for the **3NF solution** for **EACH** user view in this assignment
 - You are to show each step in your solution: UNF, 1NF, 2NF, 3NF
 - You are to clearly mark Primary and Foreign Keys as shown in the sample below:
TABLENAME [Field1 (PK), Field2, Field3, Field4 (FK)]
3. Produce an ERD that models your finished design.
4. Create the database and include the SQL script you used to do so as a PDF in your final submission.
5. Produce a query to show all the constraints in place for all tables. Include sample data in your tables and produce sample reports of all tables and roles/views you have created (Using screen shots)
6. You must hand in one per group.
7. Each day being late will result in 10% mark penalty.

Checklist

Title page –include all members of the group
3nf solution
ER model
SQL script to create database
Screenshots of all views you have created

Total mark

50 - 3NF solution (10 marks each view)
20 - ER models
20 - SQL script
10 - Roles/Views

Description of Operations

Josh's Landscaping is a landscaping company that has been in business for over a decade.

Josh's Landscaping's business is to offer several services to customers. Services include "Lawn Cutting", "Garden Planting", fall "Leaf Clearing", and winter "Snow Shoveling". Each customer may require one or more of these services at a time; and the customer may require the same service repeated several times each year.

Teams of employees deliver the services offered by Josh's Landscaping. Each team can carry out all types of service, and more than one team can carry out each service. All of Josh's Landscaping maintenance employees are organized into a team. Each employee can belong to only one team. We will also store each employee's OHIP (health card) number in case an employee is injured on the job.

Finally, Josh's Landscaping also sells lawn and garden products to customers. A customer can purchase one or more products; and we have several of each product in stock to allow sales of the same product to any number of different customers. To help Josh's Landscaping organize its products, each product is given a single classification. For example, Josh's Landscaping sells the classification of "Garden Tools" which include products such as: "Garden Rakes", "Shovels", "Picks", "Axes", "Pitch Forks", and "Hand Shears". Josh's Landscaping also sells a classification of "Shrubs" which include products: "Cedar", "Golden Cedar", "Mullberry", and "Juniper".

Josh's Landscaping: User View 1

Below are shown 2 sample invoices for the services our business sells. (An invoice is the same as a receipt). We write a customer invoice once all services are completed for a customer visit. This invoice will itemize many details including the services provided, the time it took to complete those services, the charge for those services, the total of all service charges.

Sample1

Invoice Statement

INVOICE #: 1355

INVOICE DATE: 5-Jul-19

WORK TEAM: 2

EQUIP. USED: 20 hp John Deer tractor/ mower
10" tree pruning shears
2 hp Johnson grass trimmer

CUSTOMER: 56 - John Adams

ADDRESS: 234 Bloor W

North Bay, ON
M2S 4S3

SERVICES:

SERVICE CODE	DESCRIPTION	HOURLY CHARGE	WORK DURATION (hours)	TOTAL CHARGE
LC	Lawn Cutting	\$25.00	0.75	\$18.75
LW	Lawn Weeding	\$35.00	1.15	\$40.25
LF	Lawn Fertilizing	\$15.00	0.25	\$3.75
TG	Tree Pruning	\$45.00	0.50	\$22.50

SUBTOTAL: \$85.25

GST (7%): \$5.97

PST (8%): \$6.82

TOTAL DUE: \$98.04

Sample2Invoice Statement

INVOICE #: 1412

INVOICE DATE: 04-Jul-19

CUSTOMER: 34 - Ashley Riley

WORK TEAM: 3

ADDRESS: 156 Avindale Cresc

EQUIP. USED: 20 hp John Deer tractor/ mower
 2 hp Johnson grass trimmer
 Haggmann garden-tiller

North Bay, ON
 M4T 4R7

SERVICES:

SERVICE CODE	DESCRIPTION	HOURLY CHARGE	WORK DURATION (hours)	TOTAL CHARGE
LC	Lawn Cutting	\$25.00	0.75	\$18.75
GW	Garden Weeding	\$25.00	1.15	\$28.75
GP	Garden Planting	\$30.00	0.25	\$7.50
GF	Garden Fertilizing	\$10.00	0.50	\$5.00

SUBTOTAL: \$60.00

GST (7%): \$4.20

PST (8%): \$4.80

TOTAL DUE: \$69.00

Josh's Landscaping: User View 2

Below is a listing of Josh's Landscaping teams of lawn care specialists that do the services for our customers. The Operations Manager uses this report to schedule which teams will be sent to which customers on any given work day. Team members work together when visiting a customer site.

Team - Employee Reports

<u>TEAM</u>	<u>DESCRIPTION</u>					
1	General Contracting					
<u>POSITION</u>	<u>NAME</u>	<u>EMP ID:</u>	<u>OHIP</u>	<u>HOME PHONE</u>	<u>START DATE</u>	<u>SKILLS</u>
Supervisor	Cindy Lee	120	219032002	905-338-1234	1-Jan-98	Electrical , Plumbing , General Contractor
Lawn Care	Amy Smith	122	34111991	905-338-1234	30-Jun-99	Irrigation , Lawn Maintenance

<u>TEAM</u>	<u>DESCRIPTION</u>					
2	Pruning and Planting					
<u>POSITION</u>	<u>NAME</u>	<u>EMP ID:</u>	<u>OHIP</u>	<u>HOME PHONE</u>	<u>START DATE</u>	<u>SKILLS</u>
Lawn Care	Paula Corelli	121	325443001	416-458-4562	30-Jun-98	Pruning , Irrigation , Fertilizing
Supervisor	Paul Huang	123	54222991	416-932-4533	30-Jun-05	"A" License , Electrical , General Contractor

<u>TEAM</u>	<u>DESCRIPTION</u>					
3	General Maintenance					
<u>POSITION</u>	<u>NAME</u>	<u>EMP ID:</u>	<u>OHIP</u>	<u>HOME PHONE</u>	<u>START DATE</u>	<u>SKILLS</u>
Lawn Care	Maria Wong	124	43524532	905-345-5366	23-Aug-98	Pruning , Lawn Maintenance
Supervisor	Phil Ramirez	126	32543555	416-435-6599	3-Mar-17	Irrigation , Plumbing , Electrical

Josh's Landscaping: User View 3

Josh's Landscaping also sells products to its customers. Below is shown a sample product sales report list. This type of report is required by the Purchasing Manager to evaluate which products are selling well and which ones are not selling well. When placing new purchases to replace items already sold, the Purchasing Manager will analyze this report first. The list shows a sample of products purchased over a 3-day period.

Product Sales Report - 3 day Sample

PROD. CLASS:	PROD. ID:	PRODUCT:	CHARGE	QTY:	INVOICE ID:	INVOICE DATE:	SALES ASSISTANT:	CUST. NO.:
GT	10	6 foot garden rake	\$12.00	1	1356	5-Jul-18	144 - Paul Smith	56
GT	40	Flat-nosed Shovel	\$8.00	1	1356	5-Jul-18	144 - Paul Smith	56
FT	140	General grade lawn fertilizer	\$10.00	3	1356	5-Jul-18	144 - Paul Smith	56
SB	100	Golden cedar sapling	\$35.00	5	1367	6-Jul-18	145 - Maria Wong	7
SB	110	Mulberry sapling	\$15.00	2	1367	6-Jul-18	145 - Maria Wong	7
GT	50	Garden pitch-fork	\$7.00	1	1367	6-Jul-18	145 - Maria Wong	7
FT	140	General grade lawn fertilizer	\$10.00	2	1367	6-Jul-18	145 - Maria Wong	7
SP	170	120 foot watering hose	\$25.00	3	1401	6-Jul-18	144 - Paul Smith	34
SP	190	Rotating sprinkler jet	\$19.00	3	1401	6-Jul-18	144 - Paul Smith	34
GT	50	Garden pitch-fork	\$7.00	1	1405	7-Jul-18	145 - Maria Wong	56

Josh's Landscaping: User View 4

Below is shown a sample product listing and pricing schedule. This report is used by the Sales Staff to determine pricing to be charged for the products that we sell. The "charge" of product sold is determined by adding the markup percentage to the cost.

Product Report

PRODUCT CLASS:	CLASSIFICATION	PRODUCT ID:	DESCRIPTION	COST	MARKUP	CHARGE
GT	Garden Tools	10	6 foot garden rake	\$9.23	30%	\$12.00
GT	Garden Tools	20	7 foot leaf rake	\$7.69	30%	\$10.00
GT	Garden Tools	30	Round mouth shovel	\$7.69	30%	\$10.00
GT	Garden Tools	40	Flat-nosed Shovel	\$6.15	30%	\$8.00
GT	Garden Tools	50	Garden pitch-fork	\$5.38	30%	\$7.00
GT	Garden Tools	60	8 inch hand shears	\$11.54	30%	\$15.00
GT	Garden Tools	70	12 inch trimming shears	\$14.62	30%	\$19.00
GT	Garden Tools	80	10 inch tamper	\$10.77	30%	\$14.00
SB	Shrubs	90	Cedar sapling	\$20.00	50%	\$30.00
SB	Shrubs	100	Golden cedar sapling	\$23.33	50%	\$35.00
SB	Shrubs	110	Mulberry sapling	\$10.00	50%	\$15.00
SB	Shrubs	120	Juniper sapling	\$16.67	50%	\$25.00
FT	Fertilizers	130	Premium lawn fertilizer	\$12.00	25%	\$15.00
FT	Fertilizers	140	General grade lawn fertilizer	\$8.00	25%	\$10.00
FT	Fertilizers	150	Premium garden fertilizer	\$14.40	25%	\$18.00
FT	Fertilizers	160	General grade garden fertilizer	\$9.60	25%	\$12.00
SP	Sprinklers	170	120 foot watering hose	\$17.86	40%	\$25.00
SP	Sprinklers	180	12 inch aluminum sprinkler	\$10.71	40%	\$15.00
SP	Sprinklers	190	Rotating sprinkler jet	\$13.57	40%	\$19.00

Josh's Landscaping: User View 5

Josh's Landscaping maintains a list of supplier information and inventory information for the products being sold. All of our products are stored and displayed in one of the aisles of our main office showroom. (Inventory is the number of products Josh's Landscaping has available for sale). Below is a sample Inventory Report

Inventory Report

PRODUCT ID:	DESCRIPTION	INVENTORY	AISLE#	SUPPLIER
10	6 foot garden rake	5	1	Sheffield-Gander inc.
20	7 foot leaf rake	5	1	Sheffield-Gander inc.
30	Round mouth shovel	4	1	Husky Inc.
40	Flat-nosed Shovel	2	1	Husky Inc.
50	Garden pitch-fork	6	1	Husky Inc.
60	8 inch hand shears	9	2	Sheffield-Gander inc.
70	12 inch trimming shears	10	2	Sheffield-Gander inc.
80	10 inch tamper	3	2	Husky Inc.
90	Cedar sapling	34	5	Northwood Farms inc.
100	Golden cedar sapling	23	5	Northwood Farms inc.
110	Mulberry sapling	12	4	Sherwood Nursery
120	Juniper sapling	15	4	Northwood Farms inc.
130	Premium lawn fertilizer	4	6	Sherwood Nursery
140	General grade lawn fertilizer	12	6	Sherwood Nursery
150	Premium garden fertilizer	14	6	Sherwood Nursery
160	General grade garden fertilizer	12	6	Sherwood Nursery
170	120 foot watering hose	9	3	Diemar Garden Center
180	12 inch aluminum sprinkler	5	3	Diemar Garden Center
190	Rotating sprinkler jet	4	3	Diemar Garden Center