**Problem 1.1** Produce a table consisting of the names and addresses of the subscribers and their phone numbers.

Select name, address, areacode, officecode, stationcode from lines Join subscribers using (portID);

name address areacode officecode stationcode

----------- ------------ ---------- ---------- -----------

Mats Sundin 45 Elgin St. 613 134 0001

Jason Allis 46 Elgin St. 613 136 0002

Eric Lindro 48 Elgin St. 613 156 0003

Bryan MacCa 23 MacLeod S 613 220 0004

Steve Nash 1129 Otterso 613 221 0005

Michael Jor 1223 Carling 613 222 0006

Roger Cleme 14 Hopewell 613 223 0007

Jack Morris 23 Prince of 613 226 0008

Roberto Alo 55 Moodie Dr 613 227 0009

Joe Carter 18 Summerset 613 229 0010

Wayne Grekz 45 Merviale. 613 310 0011

George Bell 46 Colon By 613 322 0012

Eric Staal 423 Riversid 613 333 0013

Roy Hallada 23 Ogilvie R 613 334 0014

Mario Lemie 1129 Bank Dr 613 389 0015

Patrick Roy 1223 Greenba 613 457 0016

Martin Brod 14 Baseline 613 489 0017

Homer Simps 123 Prince o 613 523 0018

Bart Simpso 155 Moodie D 613 568 0019

Joe Johnson 21 Sussex Dr 613 578 0020

Vince Carte 45 Hunt Club 613 623 0021

Ed Belfour 46 Fisher St 613 645 0022

Bobby Orr 48 Prince Ed 613 657 0023

Bobby Hull 23 Wellingto 613 712 0024

Gordie Howe 1129 Preston 613 728 0025

Larry Bird 1223 Warden 613 798 0026

Mark Messie 14 Finch Ave 416 219 0027

Wade Redden 23 Steeles A 416 331 0028

Sidney Cros 55 Sheppard 416 333 0029

Peter Forsb 1 Kennedy Dr 416 334 0030

Paul Kariya 45 Midland. 416 756 0031

Rob Blake 12 19th Ave. 705 221 0032

Chris Prong 48 16th Ave. 905 347 0033

Gary Robert 23 John St. 905 657 0034

Alex Mogily 1129 14th Av 905 819 0035

Scott Gomez 1223 Montrea 819 223 0036

Frank Thoma 14 Hull Ave. 819 227 0037

Barry Bonds 23 Hood Rd. 705 221 0038

Hank Aaron 55 Denison A 819 223 0039

Babe Ruth 1 Old Kenned 819 227 0040

Ted William 45 Birchmoun 905 347 0041

Chris Bosh 46 Queens Av 905 657 0042

Steve Sampr 448 St Clare 905 819 0043

Kobe Bryan 23 Bayview S 416 219 0044

Kevin Garne 59 Mike Myer 416 331 0045

Larry Brown 99 Blue Jays 416 333 0046

Brooke Shie 69 College A 416 334 0047

Matt Stajan 50 LakeShore 416 756 0048

Tie Domi 89 Spidina R 705 221 0049

Tevor Kidd 30 McCowan A 819 227 0050

**Problem 1.2** Produce a table that lists all the area code, office code combinations and the number of subscribers with that area code, office code combination.

Create temp table temp1 as select areacode,officecode, portid from lines;

create temp table temp2 as select areacode, officecode from temp1, subscribers where temp1.portId = subscribers.portid;

select areacode, officecode, count(areacode and officecode) from temp2 group by areacode & officecode;

areacode officecode count(areacode and officecode)

---------- ---------- ------------------------------

613 136 1

613 156 2

613 389 1

819 223 2

819 227 3

613 310 1

613 322 1

613 457 1

613 334 3

613 333 3

613 226 1

613 489 2

613 229 1

416 219 2

416 756 2

705 221 3

416 334 6

905 347 2

613 657 2

613 798 1

613 645 1

613 568 1

613 728 3

613 623 1

905 657 2

905 819 2

**Problem 1.3** List the names of all the subscribers who are originators of a call to someone who is also a subscriber.

Create table Result1 as select orig, term, name from subscribers, calls where calls.orig = subscribers.portID;

Create table Result2 as select portID from subscribers, calls where calls.term = subscribers.portID;

select Result1.name from Result1, Result2 where Result1.term = Result2.portID;

name

-----------

Mats Sundin

Jason Allis

Homer Simps

Michael Jor

Ed Belfour

**Problem 1.4** Find the names and address of all subscribers who subscribe to all of the available services

select name, address from subscribers Natural Join (select line from (select line, count(\*) from service\_subscribers Group by line) Natural Join (select count(\*) from services));

This resulted in an empty table because there are 5 services and at most each subscriber is subscribed to 3.

**Problem 1.5** Find the names of all the subscribers who subscribe to at least two services.

create temp table temp1 as select line, count(\*) from service\_subscribers Group by line having count(line) >= 2;

select name from subscribers, temp1 where subscribers.portid = temp1.line;

name

-----------

Mats Sundin

Jason Allis

Eric Lindro

Bryan MacCa

Michael Jor

Roger Cleme

Roberto Alo

Joe Carter

George Bell

Eric Staal

Mario Lemie

Patrick Roy

Homer Simps

Bart Simpso

Vince Carte

Gordie Howe

Mark Messie

Wade Redden

Sidney Cros

Peter Forsb

Paul Kariya

Chris Prong

Gary Robert

Scott Gomez

Frank Thoma

Hank Aaron

Babe Ruth

Chris Bosh

Steve Sampr

Kevin Garne

Larry Brown

Matt Stajan

Tie Domi

**Problem 1.6** Produce a table that lists the most popular service (or services). That is, give the name of the service that has the most subscribers.

create temp table temp1 as select service, count(\*) "count\_num" from service\_subscribers Group by service;

create temp table temp2 as select max(count\_num) as max\_num from temp1;

service

----------

MSG

**Problem 1.7** Find all the trunks that could be used to route a call to the following  Toronto number (416) 333-1347. (For this query it does not matter if the trunks are all busy or have idle channels, we only want to find the actual trunk id's that could be used to route the call.)

select portid from trunk\_routes where ((area = "416" and office = "000") or (area = "416" and office = "333") or (area = "000" and office = "000"));

portid

----------

102

102

106

107

**Problem 1.8** Write an SQL query that would find if the line with phone number (613) 712-0024 is currently available to take a call (that it is IDLE).

Select state from lines where (areacode = "613" and officecode = "712" and stationcode = "0024");

**Problem 1.9** Write an SQL query that will produce in one table a list of all the acceptable trunks that can be used to route a call to the 416 area code, office code 334. This query should list the trunks in the order of preference. (The answer should list trunks routes 416,334 then 416,000 then 000,000 for example)

create temp table temp1 as select \* from trunk\_routes where ((area = "416" and office = "334") or (area = "416" and office = "000") or (area = "000" and office = "000")) order by area and office desc;

**Problem 1.10** Produce a table that lists the name of all the service-subscribers that subscribe to at least all the same services as Jason Allison subscribes to but possibly others as well. Jason Allison rents the line with portID=2.

create temp table temp1 as select service from service\_subscribers where line = 2;

create temp table temp2 as select line from service\_subscribers, temp1 where temp1.service = service\_subscribers.service;

create temp table temp3 as select distinct name from subscribers, temp2 where temp2.line = subscribers.portid;

Problem 2

The Gui is incomplete. The search only works only for 'Select \* from Students' and only for that. For all other queries, the program will either throw an exception nd print to console or it will not show anything on the console. For 'Select \* from Students' it will print to the console.

The idea I had for the GUI was that the user would be able to type in a full query like the ones in Part 3.3 and the results would be shown on a seperate window. The user would then close the results window and go back to searching.

The intent of my idea was to provide a different way of querying and updating the database instead of going through the command line.

Problem 3.3.1. Find the names and ids of all the students registered in the university order by id in semester winter 2015 (W2015)

select S.Name AS "Student Name",

S.StudentID AS "Student ID"

from Students S, GPA G

where S.StudentID = G.StudentID

and G.SemesterID = 'W2015'

group by S.StudentID

;

Student Name Student ID

------------ ----------

Lea Bit SID100

Bob Ker SID101

Ackameri Gut SID102

Rera Bit SID103

Lindsey McMa SID107

Bob Reily SID123

George Riley SID140

Problem 3.3.2. Find the names, ids and the average GPA for each student who has passed or failed.

select S.Name AS "Student Name",

S.StudentID AS "Student Id",

avg(G.Grade)AS "Grade Avarage"

from Students S, GPA G

where S.StudentID = G.StudentID

and G.Status in ('Passed', 'Failed')

group by S.StudentID, S.Name

;

Student Name Student Id Grade Avarage

------------ ---------- -------------

Lea Bit SID100 9.5

Bob Ker SID101 1.3

Ackameri Gut SID102 9.2

Rera Bit SID103 9.2

James Frey SID110 6.7

Bert Hews SID112 6.85

Sabrina Shae SID113 8.175

Rita Den SID145 1.1

Ackmar Vers SID152 1.675

Problem 3.3.3. Find all the names, ids and average GPA for each student who does not meet the

department minimum GPA required

select S.Name AS "Student Name",

S.StudentID AS "Student Id",

avg(G.Grade) AS "Grade Avarage"

from Students S,

GPA G,

Programs P,

Departments D

where S.StudentID = G.StudentID

and S.ProgramID = P.ProgramID

and P.DepartmentID = D.DepartmentID

and G.Status in ('Passed', 'Failed')

group by S.StudentID, S.Name

having avg(G.Grade) < D.MinimumGPA

;

Student Name Student Id Grade Avarage

------------ ---------- -------------

Bob Ker SID101 1.3

Rita Den SID145 1.1

Ackmar Vers SID152 1.675

Problem 3.3.4. Find all the available courses, names for student Id = 'SID123' and semester with id W2015

select ST.Name AS "Student Name",

ST.StudentID AS "Student ID",

CF.CourseID AS "Course ID",

CF.Name AS "Course Name",

S.SectionID AS "Section",

CF.Description AS "Description",

SM.Name AS "Semester Name"

from Courses CF,

Section S,

Semester SM,

Students ST,

Programs P

where ST.StudentID = 'SID123'

and S.SemesterID = 'W2015'

and CF.CourseID = S.CourseID

and CF.ProgramID = ST.ProgramID

and S.SemesterID = SM.SemesterID

and (

CF.PrerequisitesID is null

OR

CF.PrerequisitesID in

(

select G1.CourseID

from Students ST1, GPA G1

where ST1.StudentID = G1.StudentID

and ST1.StudentID = ST.StudentID

and G1.Status='Passed'

)

)

and CF.CourseID not in

(

select G2.CourseID

from Students ST2, GPA G2

where ST2.StudentID = G2.StudentID

and ST2.StudentID = ST.StudentID

and G2.Status in ('Passed','In Process')

)

group by CF.CourseID

;

Student Name Student ID Course ID Course Name Section Description Semester Name

------------ ---------- ---------- ---------------------- ---------- -------------------------------------------------------- -------------

Bob Reily SID123 COMP101 Python Object Oriented B Introduction to Object Oriented Programming using Python Winter 2015

Bob Reily SID123 COMP201 GUI design with Python B Designing GUIs using Python Winter 2015

Bob Reily SID123 COMP250 Ruby A Students will learn about Ruby Programming Language Winter 2015

Problem 3.3.5. Find all the profs that teach the JAVA course in the Course Description

select P.Title AS "Title",

P.Name AS "Name",

D.Name AS "Department Name"

from Courses C,

Section S,

Professors P,

Departments D

where C.Description like '%JAVA%'

and C.CourseID = S.CourseID

and P.EmployeeID = S.EmployeeID

and D.DepartmentID = P.DepartmentID

;

Title Name Department Name

---------- -------------- ------------------

Prof Billy Jenikson Science Department

Prof Sarah Bradly Science Department

Prof Kim Righterson Science Department

Prof Billy Jenikson Science Department

Prof Sarah Bradly Science Department

Prof Kim Righterson Science Department

Problem 3.3.6. Find all the profs, their title, their name and their department name that student with id SID123 is being taught by.

select P.Title AS "Professor Title",

P.Name AS "Professor Name",

D.Name AS "Department Name"

from Students ST,

GPA G,

Section S,

Professors P,

Departments D

where ST.StudentID = 'SID123'

and G.Status = 'In Progress'

and G.StudentID = ST.StudentID

and S.CourseID = G.CourseID

and S.SectionID = G.SectionID

and S.EmployeeID = P.EmployeeID

and P.DepartmentID = D.DepartmentID

;

Professor Title Professor Name Department Name

--------------- -------------- ------------------

Prof Billy Jenikson Science Department

Prof Bianca Gradeso Science Department

Prof Kim Righterson Science Department

Prof Sam Isic Engineering Depart

Problem 3.3.7. Find the names and titles of all the computer course (comp) profs and the reseach name they are doing

select P.Title AS "Professor Title",

P.Name AS "Professor Name",

D.Name AS "Department Name",

R.Name AS "Research Name"

from Professors P,

Research R,

Section S,

Departments D

where P.EmployeeID = R.EmployeeID

and S.EmployeeID = P.EmployeeID

and P.DepartmentID = D.DepartmentID

and S.CourseID like '%Comp%'

group by P.EmployeeID

;

Professor Title Professor Name Department Name Research Name

--------------- -------------- ------------------ ---------------------------

Prof Kim Righterson Science Department Advanced Engineering Topics

Prof Sarah Bradly Science Department Advanced Engineering Topics

Prof Bianca Gradeso Science Department Advanced Engineering Topics

Prof Billy Jenikson Science Department Advanced Engineering Topics

Problem 3.3.8. Find all the programs name, program length available from the university and the Departments names they

belong to as well as the minimum GPA required to be in that program.

select P.Name AS "Program Name",

P.Length AS "Program Length",

D.Name AS "Department Name",

D.MinimumGPA AS "Minimum GPA Required"

from Programs P, Departments D

where P.DepartmentID = D.DepartmentID

group by P.DepartmentID

;

Program Name Program Length Department Name Minimum GPA Required

------------ -------------- ------------------- --------------------

Business 4 Business Department 5.0

Software Eng 4 Engineering Departm 6.0

Law 4 Law Department 5.5

Science 4 Science Department 4.5

Problem 3.3.9. Find the name of the profs whose have finished their research within the last 6 months.

select P.Title AS "Professor Title",

P.Name AS "Professor Name"

from Professors P, Research R

where R.EmployeeID = P.EmployeeID

and R.EndDate IS NOT NULL

and R.EndDate = date('now','-6 months')

;

Professor Title Professor Name

--------------- --------------

Prof Michele Gitek

Prof Michael Rester

Prof Tiffany Kerbej

Prof Sam Isic

Prof Billy Jenikson

Prof Sarah Bradly

Prof Kim Righterson

Prof Bianca Gradeso

Problem 3.3.10. Find all the courses, their sections and the profs teaching that course for semester Fall 2015 (F2015)

select C.Name AS "Course Name",

S.SectionID AS "Section",

P.Title AS "Professor Title",

P.Name AS "Professor Name"

from Section S,

Professors P,

Courses C

where S.SemesterID = 'F2015'

and S.EmployeeID = P.EmployeeID

and S.CourseID = C.CourseID

order by P.Name

;

Course Name Section Professor Title Professor Name

----------- ---------- --------------- ---------------

Biology 3 A Prof Bianca Gradeson

Biology 3 B Prof Bianca Gradeson

Research A Prof Billy Jenikson

Research B Prof Billy Jenikson

Internation A Prof Jason Richards

Internation B Prof Jennifer McLovi

Marketing A Prof Jessica McCaren

Marketing B Prof Jessica McCaren

Client-Serv A Prof Kim Righterson

Client-Serv A Prof Kim Righterson

Client-Serv B Prof Kim Righterson

Client-Serv B Prof Kim Righterson

Electronics A Prof Michael Rester

App Develop A Prof Michael Rester

Electronics B Prof Michael Rester

App Develop B Prof Michael Rester

Mechanics 3 A Prof Michele Gitek

Mechanics 3 B Prof Michele Gitek

Civil 3 A Prof Sam Isic

Civil 3 B Prof Sam Isic

Linear Alge A Prof Sarah Bradly

Linear Alge B Prof Sarah Bradly

Processors A Prof Tiffany Kerbej

Environment A Prof Tiffany Kerbej

Processors B Prof Tiffany Kerbej

Environment B Prof Tiffany Kerbej