WEEKLY-EXERCISE - 11

ICS 365-51 **Metropolitan State University/MN**

Week 13 **Due 11:59pm, Sunday, Nov. 20th, 2022** **Fall 2022**

Name:_____Pong Lee_____ **Score: _____**

Please complete both Parts I and II and then upload the results to D2L under the dropbox for Weekly Exercise 11 before the deadline (total 20 points).

Part I: Based on the discussion in this week's lecture, please either **bold** or highlight your answers below, only one answer per question. (1 point each, total 10 points)

1. Based on the discussion in Chapter 15 on **ML**, which of the followings will be the value of `newList` after applying the `map` function defined as `val newList = map (fn x => x * x, [2, 4, 6]);` ?
   A) `[2, 4, 6]`
   B) `[4, 8, 12]`
   C) `[4, 12, 24]`
   D) `[4, 16, 36]`
   E) Your answer: _____

2. Based on the discussion in Chapter 15 on "**Haskell** Lists," which of the followings will be the result of the evaluation of `[1, 3..9]` ?
   A) `[1, 3, 4, 5, 6, 7, 8, 9]`
   B) `[1, 3, 6, 9]`
   C) `[1, 3, 5, 7, 9]`
   D) `[3, 4, 5, 6, 7, 8, 9]`
   E) Your answer: _____

3. Based on the discussion in Chapter 16, all the followings are recognized as **Prolog** statements except
   A) Assignment statements;
   B) Facts;
   C) Goals;
   D) Rules.

4. Based on the discussion in Chapter 16 on **Prolog**, which of the followings is a fact statement?
   A) `distance(X,Y) :- speed(X,Speed), time(X,Time), Y is Speed * Time.`
   B) `grandparent(X,Z):- parent(X,Y), parent(Y,Z).`
   C) `speed(dodge,95).`
   D) `parent(X,Y):- mother(X,Y).`

5. Based on the discussion in Chapter 16 on deficiencies of **Prolog**, which of the followings is called "the negation problem" for Prolog?
   A) The only knowledge is what is in the database;
   B) Anything not stated in the database is assumed to be false;
   C) The order of attempted matches is nondeterministic and all matches would be attempted concurrently;
   D) It is easy to state a sort process in logic, but difficult to actually implement it.

6. Based on the discussion of Chapter 16, which of the following statements is true?

A) Prolog uses breadth-first search;

B) Depth-first search means to work on all subgoals in parallel;

C) Prolog implementations use backward chaining;

D) Breadth-first search means to find a complete proof for the first subgoal before working on others.

7. Which of the followings is not one of logical operators in Java?

A) ==

B) ||

C) &&

D) !

E) ^

8. Based on the discussion of Chapter 16, which of the following statements is not true?

A) Top-down resolution is backward chaining, where we begin with goal and attempt to find sequence that leads to set of facts in database;

B) Matching in a logical programming language refers to the process of proving a proposition;

C) Bottom-up resolution is forward chaining, where we begin with facts and rules of database and attempt to find sequence that leads to goal;

D) Top-down resolution works well with a large set of possibly correct answers.

9. Based on the discussion in Chapter 16, which of the following statements is not true to logical programming languages?

A) In logic programming languages, a logical inferencing process is used to produce results;

B) A particular form of symbolic logic used for logic programming is called predicate calculus;

C) In addition to the specification of results, the steps in reaching the results must also be detailed in logic programming languages;

D) Programs in logic programming languages are expressed in a form of symbolic logic.

10. Based on the discussion in Chapter 16, which of the following statements refers to "instantiation?"

A) an inference principle that allows inferred propositions to be computed from given propositions;

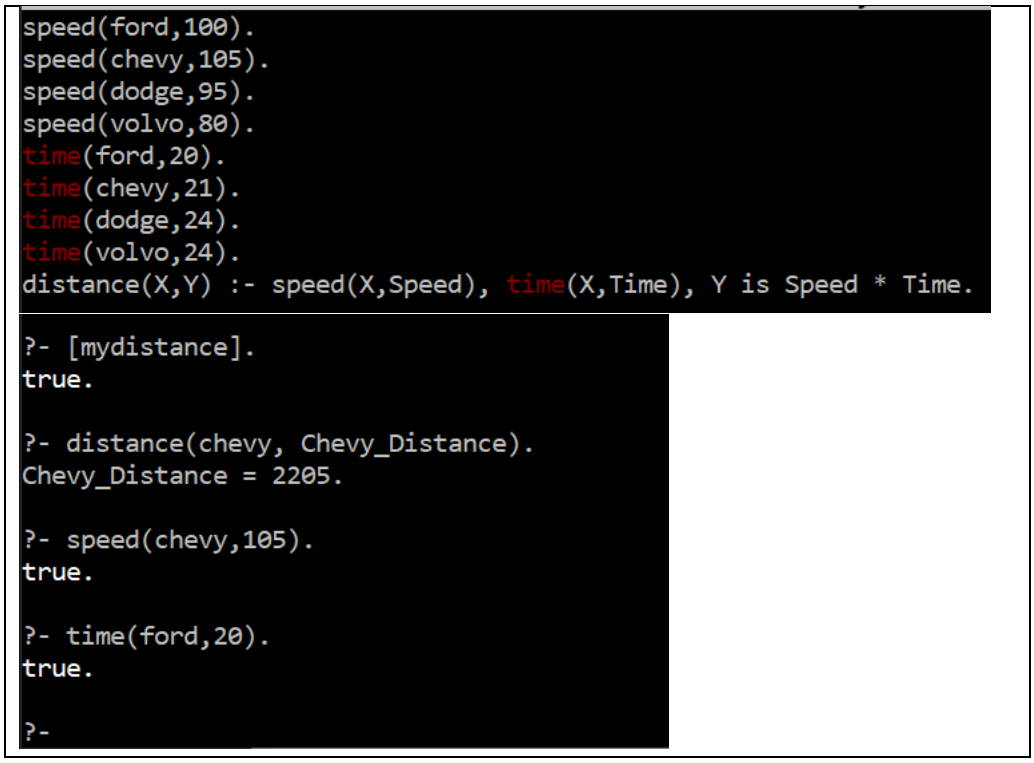
B) finding values for variables in propositions that allows matching process to succeed;

C) discovering new theorems that can be inferred from known axioms and theorems;

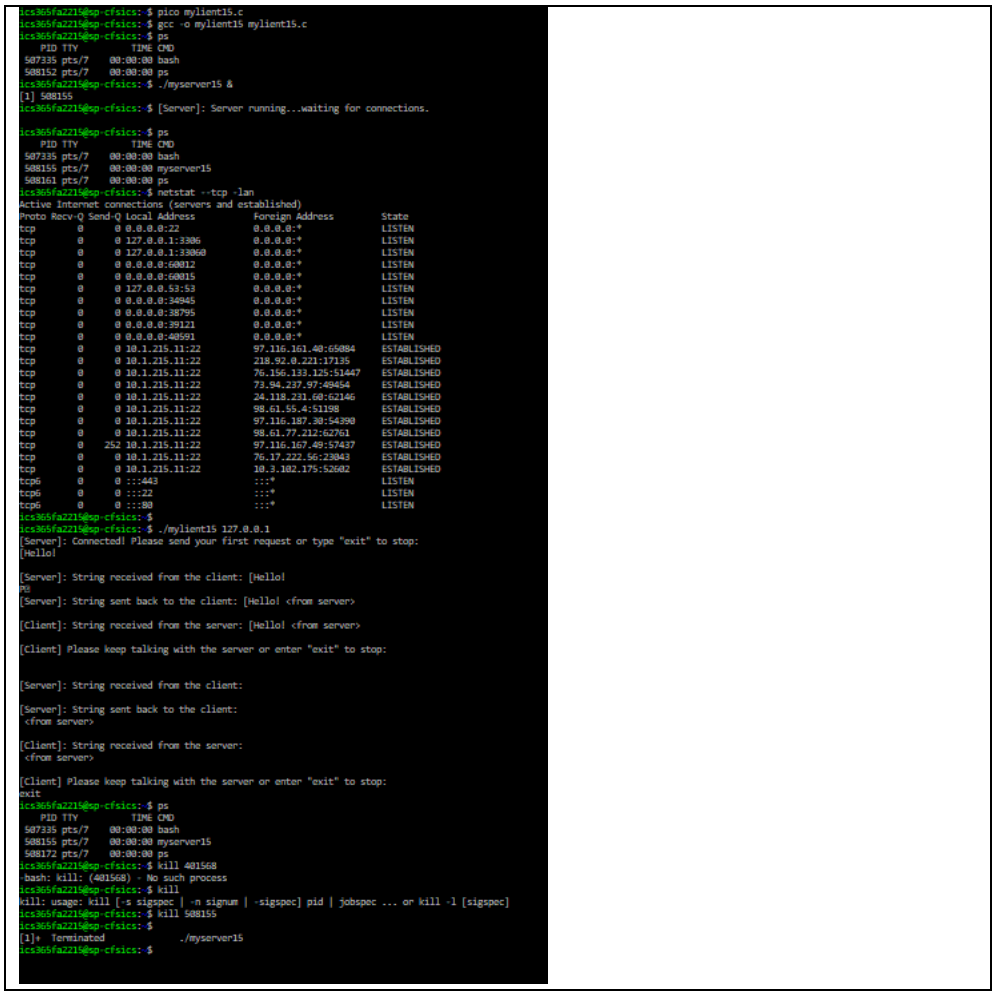
D) assigning temporary values to variables to allow unification to succeed.

Part II: Please study the lecture slides and handouts covered this week before working on the following tasks: (Total 10 points)

2.1) Please verify the example introduced on lecture slide 31 of Chapter 16 (or the discussion on page 696 of the textbook). Please create the database as "*mydistance*" and then follow the steps introduced in Handout B for week 13. Please provide the screenshot below, which is similar to the screenshot demonstrated in Handout B, page 2. (total 5 points):



2.2) Please provide the screenshot of the execution and testing of C programs (Socket Programming in C) provided in Handout A for Week 13. Please also provide the screenshot of command "*netstat*" that indicates you have properly released the port you used after you completed your task. (5 points):


ics365fa221s@sp-cfsics:~$ pico mylient15.c
ics365fa221s@sp-cfsics:~$ gcc -o mylient15 mylient15.c
ics365fa221s@sp-cfsics:~$ ps
PID TTY TIME CMD
507335 pts/7 00:00:00 bash
508152 pts/7 00:00:00 ps
ics365fa221s@sp-cfsics:~$ ./myserver15 &
[1] 508155
ics365fa221s@sp-cfsics:~$ [Server]: Server running...waiting for connections.
ics365fa221s@sp-cfsics:~$ ps
PID TTY TIME CMD
507335 pts/7 00:00:00 bash
508155 pts/7 00:00:00 myserver15
508161 pts/7 00:00:00 ps
ics365fa221s@sp-cfsics:~$ netstat --tcp -lan
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address Foreign Address State
tcp 0 0 0.0.0.0:22 0.0.0.0:* LISTEN
tcp 0 0 127.0.0.1:3306 0.0.0.0:* LISTEN
tcp 0 0 127.0.0.1:33060 0.0.0.0:* LISTEN
tcp 0 0 0.0.0.0:60012 0.0.0.0:* LISTEN
tcp 0 0 0.0.0.0:60015 0.0.0.0:* LISTEN
tcp 0 0 127.0.0.53:53 0.0.0.0:* LISTEN
tcp 0 0 0.0.0.0:34945 0.0.0.0:* LISTEN
tcp 0 0 0.0.0.0:38795 0.0.0.0:* LISTEN
tcp 0 0 0.0.0.0:39121 0.0.0.0:* LISTEN
tcp 0 0 0.0.0.0:40591 0.0.0.0:* LISTEN
tcp 0 0 10.1.215.11:22 97.116.161.40:65084 ESTABLISHED
tcp 0 0 10.1.215.11:22 218.92.0.221:17135 ESTABLISHED
tcp 0 0 10.1.215.11:22 76.156.133.125:51447 ESTABLISHED
tcp 0 0 10.1.215.11:22 73.94.237.97:49454 ESTABLISHED
tcp 0 0 10.1.215.11:22 24.118.231.60:62146 ESTABLISHED
tcp 0 0 10.1.215.11:22 98.61.55.4:51198 ESTABLISHED
tcp 0 0 10.1.215.11:22 97.116.187.30:54390 ESTABLISHED
tcp 0 0 10.1.215.11:22 98.61.77.212:62761 ESTABLISHED
tcp 0 252 10.1.215.11:22 97.116.167.49:57437 ESTABLISHED
tcp 0 0 10.1.215.11:22 76.17.222.56:23043 ESTABLISHED
tcp 0 0 10.1.215.11:22 10.3.102.175:52602 ESTABLISHED
tcp6 0 0 :::443 :::* LISTEN
tcp6 0 0 :::22 :::* LISTEN
tcp6 0 0 :::80 :::* LISTEN
ics365fa221s@sp-cfsics:~$
ics365fa221s@sp-cfsics:~$ ./mylient15 127.0.0.1
[Server]: Connected! Please send your first request or type "exit" to stop:
Hello!
[Server]: String received from the client: Hello!
Hi
[Server]: String sent back to the client: Hello! <from server>
[Client]: String received from the server: Hello! <from server>
[Client] Please keep talking with the server or enter "exit" to stop:
[Server]: String received from the client:
[Server]: String sent back to the client:
<from server>
[Client]: String received from the server:
<from server>
[Client] Please keep talking with the server or enter "exit" to stop:
exit
ics365fa221s@sp-cfsics:~$ ps
PID TTY TIME CMD
507335 pts/7 00:00:00 bash
508155 pts/7 00:00:00 myserver15
508172 pts/7 00:00:00 ps
ics365fa221s@sp-cfsics:~$ kill 401568
-bash: kill: (401568) - No such process
ics365fa221s@sp-cfsics:~$ kill
kill: usage: kill [-s sigspec | -n signum | -sigspec] pid | jobspec ... or kill -l [sigspec]
ics365fa221s@sp-cfsics:~$ kill 508155
ics365fa221s@sp-cfsics:~$
[1]+ Terminated ./myserver15
ics365fa221s@sp-cfsics:~$