# CS571: Advanced Programming Techniques

Winter 2020

*Assignment #8*

**Due date: Tuesday, March 10 at 11:59pm**

**Java Programming and JDBC Interface**

In this assignment you will write a Java program that executes SQL queries against a database that contains information about NBA players.

**Part 1 – Preprocess the NBA data**

The assignment includes a comma-separated file called nba\_full.csv that contains information about NBA players. The first line is the header and shows the column names:

player,salary,season,season\_end,season\_start,team

Create a bash file named

reduce\_nba.bash

that uses AWK to eliminate the columns, season\_end and season\_start, and create another CSV file called nba.csv with the following header and associated data:

player,salary,season,team

**Part 2 – Create the NBA database – do this once only**

Use sqlite3 to create the database nba.db in the SQLite database management system. Once the database is created, it can be used again. Make sure you use sqlite3 and not sqlite. No need to install it, it is available on the Drexel tux Unix machines already. Use the .import statement to import a csv file and create a database. Use the .tables and .schema statements to see the DBMS’s available tables and table definitions. Notice how before we perform the import, the .tables statement returns nothing.

% sqlite3 nba.db

SQLite version 3.22.0 2018-01-22 18:45:57

Enter ".help" for usage hints.

sqlite> .tables

sqlite> .mode csv

sqlite> .import nba.csv nba

sqlite> .tables

nba

sqlite> .schema nba

CREATE TABLE nba(

"player" TEXT,

"salary" TEXT,

"season" TEXT,

"team" TEXT

);

sqlite> select count(\*) from nba;

14163

sqlite> .quit

**Part 3 – Use the database to analyze the data**

Enter the command line interface for SQLite in order to investigate the database you created in Part 2. Use this:

sqlite3 nba.db

Write two SQL queries to find the following:

1. Write a SQL query to find the names of all players who played for the Philadelphia 76ers during the most recent season (‘2017-2018’ for this dataset)
2. Write a SQL query to find all distinct teams Allen Iverson played for (no duplicates).

**Part 4– Write a Java Program**

Write a Java program that connects to the nba.db SQLite database, executes the two SQL queries above and displays the results to the screen.

How to compile

The assignment includes a jar file named sqlite-jdbc-3.30.1.jar. Put this file in your working directory before invoking the javac compiler. The assignment also includes a Makefile that can help you with the compilation process.

Submit the bash filereduce\_nba.bash and the Java program nba.java to Blackboard.