

# Honor\_Assignment-PeerAssign-v6-Copy1

March 16, 2023

Final Project: Advanced SQL Techniques

## 1 Introduction

Using this Python notebook you will:

1. Understand three Chicago datasets
2. Load the three datasets into three tables in a Db2 database
3. Execute SQL queries to answer assignment questions

### 1.1 Understand the datasets

To complete the assignment problems in this notebook you will be using three datasets that are available on the city of Chicago's Data Portal:

1. Socioeconomic Indicators in Chicago
2. Chicago Public Schools
3. Chicago Crime Data

#### 1.1.1 1. Socioeconomic Indicators in Chicago

This dataset contains a selection of six socioeconomic indicators of public health significance and a "hardship index," for each Chicago community area, for the years 2008 – 2012.

A detailed description of this dataset and the original dataset can be obtained from the Chicago Data Portal at: <https://data.cityofchicago.org/Health-Human-Services/Census-Data-Selected-socioeconomic-indicators-in-C/kn9c-c2s2>

#### 1.1.2 2. Chicago Public Schools

This dataset shows all school level performance data used to create CPS School Report Cards for the 2011-2012 school year. This dataset is provided by the city of Chicago's Data Portal.

A detailed description of this dataset and the original dataset can be obtained from the Chicago Data Portal at: <https://data.cityofchicago.org/Education/Chicago-Public-Schools-Progress-Report-Cards-2011-/9xs2-f89t>

### 1.1.3 3. Chicago Crime Data

This dataset reflects reported incidents of crime (with the exception of murders where data exists for each victim) that occurred in the City of Chicago from 2001 to present, minus the most recent seven days.

A detailed description of this dataset and the original dataset can be obtained from the Chicago Data Portal at: <https://data.cityofchicago.org/Public-Safety/Crimes-2001-to-present/ijzp-q8t2>

### 1.1.4 Download the datasets

This assignment requires you to have these three tables populated with a subset of the whole datasets.

In many cases the dataset to be analyzed is available as a .CSV (comma separated values) file, perhaps on the internet. Click on the links below to download and save the datasets (.CSV files):

- Chicago Census Data
- Chicago Public Schools
- Chicago Crime Data

**NOTE:** For the learners who are encountering issues with loading from .csv in DB2 on Firefox, you can download the .txt files and load the data with those:

- Chicago Census Data
- Chicago Public Schools
- Chicago Crime Data

**NOTE:** Ensure you have downloaded the datasets using the links above instead of directly from the Chicago Data Portal. The versions linked here are subsets of the original datasets and have some of the column names modified to be more database friendly which will make it easier to complete this assignment.

### 1.1.5 Store the datasets in database tables

To analyze the data using SQL, it first needs to be stored in the database.

While it is easier to read the dataset into a Pandas dataframe and then PERSIST it into the database as we saw in Week 3 Lab 3, it results in mapping to default datatypes which may not be optimal for SQL querying. For example a long textual field may map to a CLOB instead of a VARCHAR.

Therefore, **it is highly recommended to manually load the table using the database console LOAD tool, as indicated in Week 2 Lab 1 Part II.** The only difference with that lab is that in Step 5 of the instructions you will need to click on create “(+) New Table” and specify the name of the table you want to create and then click “Next”.

**Now open the Db2 console, open the LOAD tool, Select / Drag the .CSV file for the first dataset, Next create a New Table, and then follow the steps on-screen instructions to load the data. Name the new tables as follows:**

1. CENSUS\_DATA
2. CHICAGO\_PUBLIC\_SCHOOLS
3. CHICAGO\_CRIME\_DATA

### 1.1.6 Connect to the database

Let us first load the SQL extension and establish a connection with the database

The following required modules are pre-installed in the Skills Network Labs environment. However if you run this notebook commands in a different Jupyter environment (e.g. Watson Studio or Ananconda) you may need to install these libraries by removing the # sign before !pip in the code cell below.

```
[ ]: # These libraries are pre-installed in SN Labs. If running in another
      ↪environment please uncomment lines below to install them:
      # !pip install --force-reinstall ibm_db==3.1.0 ibm_db_sa==0.3.3
      # Ensure we don't load_ext with sqlalchemy>=1.4 (incompadible)
      # !pip uninstall sqlalchemy==1.4 -y && pip install sqlalchemy==1.3.24
      # !pip install ipython-sql
```

```
[2]: %load_ext sql
```

In the next cell enter your db2 connection string. Recall you created Service Credentials for your Db2 instance in first lab in Week 3. From your Db2 service credentials copy everything after db2:// (except the double quote at the end) and paste it in the cell below after ibm\_db\_sa://

```
[4]: # Remember the connection string is of the format:
      # %sql ibm_db_sa://my-username:my-password@my-hostname:my-port/my-db-name?
      ↪security=SSL
      # Enter the connection string for your Db2 on Cloud database instance below#
      ↪1754175317511752
      %sql ibm_db_sa://pvm06411:2qJw18PKKPXhLAsw@764264db-9824-4b7c-82df-40d1b13897c2.
      ↪bs2io90108kqb1od8lcg.databases.appdomain.cloud:32536/bludb?security=SSL
```

```
[4]: 'Connected: pvm06411@bludb'
```

**1.1.7 You have been asked to produce some reports about the communities and crimes in the Chicago area. You will need to use SQL join queries to access the data stored across multiple tables.**

### 1.1.8 Question 1

Write and execute a SQL query to list the school names, community names and average attendance for communities with a hardship index of 98.

```
[6]: %sql select CPS.NAME_OF_SCHOOL, CPS.AVERAGE_STUDENT_ATTENDANCE, CD.
      ↪COMMUNITY_AREA_NAME, CD.HARDSHIP_INDEX
      from CHICAGO_PUBLIC_SCHOOLS as CPS LEFT OUTER JOIN CENSUS_DATA AS CD ON CPS.
      ↪COMMUNITY_AREA_NUMBER = CD.COMMUNITY_AREA_NUMBER
```

```
WHERE CD.HARDSHIP_INDEX = 98;
```

```
* ibm_db_sa://pvm06411:***@764264db-9824-4b7c-82df-40d1b13897c2.bs2io90108kqb1o
d8lclg.databases.appdomain.cloud:32536/bludb
Done.
```

```
[6]: [('George Washington Carver Military Academy High School', '91.60%',
      'Riverdale', 98),
      ('George Washington Carver Primary School', '90.90%', 'Riverdale', 98),
      ('Ira F Aldridge Elementary School', '92.90%', 'Riverdale', 98),
      ('William E B Dubois Elementary School', '93.30%', 'Riverdale', 98)]
```

### 1.1.9 Question 2

Write and execute a SQL query to list all crimes that took place at a school. Include case number, crime type and community name.

```
[8]: %sql SELECT CCD.CASE_NUMBER, CCD.PRIMARY_TYPE, CD.COMMUNITY_AREA_NAME, CCD.
      ↳LOCATION_DESCRIPTION
FROM CHICAGO_CRIME_DATA AS CCD LEFT OUTER JOIN CENSUS_DATA AS CD
ON CCD.COMMUNITY_AREA_NUMBER = CD.COMMUNITY_AREA_NUMBER
WHERE CCD.LOCATION_DESCRIPTION LIKE '%SCHOOL%';
```

```
* ibm_db_sa://pvm06411:***@764264db-9824-4b7c-82df-40d1b13897c2.bs2io90108kqb1o
d8lclg.databases.appdomain.cloud:32536/bludb
Done.
```

```
[8]: [('HK577020', 'NARCOTICS', 'Rogers Park', 'SCHOOL, PUBLIC, GROUNDS'),
      ('HL725506', 'BATTERY', 'Lincoln Square', 'SCHOOL, PUBLIC, BUILDING'),
      ('HH639427', 'BATTERY', 'Austin', 'SCHOOL, PUBLIC, BUILDING'),
      ('HS200939', 'CRIMINAL DAMAGE', 'Austin', 'SCHOOL, PUBLIC, GROUNDS'),
      ('HT315369', 'ASSAULT', 'East Garfield Park', 'SCHOOL, PUBLIC, GROUNDS'),
      ('HP716225', 'BATTERY', 'Douglas', 'SCHOOL, PUBLIC, BUILDING'),
      ('HL353697', 'BATTERY', 'South Shore', 'SCHOOL, PUBLIC, GROUNDS'),
      ('HS305355', 'NARCOTICS', 'Brighton Park', 'SCHOOL, PUBLIC, BUILDING'),
      ('JA460432', 'BATTERY', 'Ashburn', 'SCHOOL, PUBLIC, GROUNDS'),
      ('HR585012', 'CRIMINAL TRESPA', 'Ashburn', 'SCHOOL, PUBLIC, GROUNDS'),
      ('HH292682', 'PUBLIC PEACE VI', None, 'SCHOOL, PRIVATE, BUILDING'),
      ('G635735', 'PUBLIC PEACE VI', None, 'SCHOOL, PUBLIC, BUILDING')]
```

### 1.1.10 Exercise 2: Creating a View

For privacy reasons, you have been asked to create a view that enables users to select just the school name and the icon fields from the CHICAGO\_PUBLIC\_SCHOOLS table. By providing a view, you can ensure that users cannot see the actual scores given to a school, just the icon associated with their score. You should define new names for the view columns to obscure the use of scores and icons in the original table.

### 1.1.11 Question 1

Write and execute a SQL statement to create a view showing the columns listed in the following table, with new column names as shown in the second column.

Column name in CHICAGO\_PUBLIC\_SCHOOLS    Column name in view

NAME\_OF\_SCHOOL    School\_Name

Safety\_Icon    Safety\_Rating

Family\_Involvement\_Icon    Family\_Rating

Environment\_Icon    Environment\_Rating

Instruction\_Icon    Instruction\_Rating

Leaders\_Icon    Leaders\_Rating

Teachers\_Icon    Teachers\_Rating

Write and execute a SQL statement that returns all of the columns from the view.

Write and execute a SQL statement that returns just the school name and leaders rating from the view.

```
[29]: %sql CREATE OR REPLACE VIEW SCHOOL_DATA
("SCHOOL_NAME", "Safety_Rating", "Family_Rating",
↪ "Environment_Rating", "Instruction_Rating", "Leaders_Rating", "Teachers_Rating")
AS SELECT
↪ "NAME_OF_SCHOOL", "SAFETY_ICON", "FAMILY_INVOLVEMENT_ICON", "ENVIRONMENT_ICON", "INSTRUCTION_IC
FROM CHICAGO_PUBLIC_SCHOOLS;
SELECT "SCHOOL_NAME", "Safety_Rating" FROM SCHOOL_DATA;
```

```
* ibm_db_sa://pvm06411:***@764264db-9824-4b7c-82df-40d1b13897c2.bs2io90l08kqb1o
d8l1cg.databases.appdomain.cloud:32536/bludb
```

Done.

Done.

```
[29]: [('A.N. Pritzker School', 'Average'),
('Abraham Lincoln Elementary School', 'Very Strong'),
('Adam Clayton Powell Paideia Community Academy Elementary School', 'Average'),
('Adlai E Stevenson Elementary School', 'Strong'),
('Agustin Lara Elementary Academy', 'Average'),
('Air Force Academy High School', 'Average'),
('Al Raby High School', 'Average'),
('Albany Park Multicultural Academy', 'Strong'),
('Albert G Lane Technical High School', 'Very Strong'),
('Albert R Sabin Elementary Magnet School', 'Strong'),
('Alcott High School for the Humanities', 'Strong'),
```

('Alessandro Volta Elementary School', 'Average'),  
 ('Alex Haley Elementary Academy', 'Weak'),  
 ('Alexander Graham Bell Elementary School', 'Very Strong'),  
 ('Alexander Graham Elementary School', 'Average'),  
 ('Alexander Hamilton Elementary School', 'Strong'),  
 ('Alexander von Humboldt Elementary School', 'Weak'),  
 ('Alfred David Kohn Elementary School', 'Very Weak'),  
 ('Alfred Nobel Elementary School', 'Weak'),  
 ('Alice L Barnard Computer Math & Science Center Elementary School',  
 'Average'),  
 ('Ambrose Plamondon Elementary School', 'Average'),  
 ('Amelia Earhart Options for Knowledge Elementary School', 'Very Strong'),  
 ('Ames Middle School', 'Weak'),  
 ('Amos Alonzo Stagg Elementary School', 'Weak'),  
 ('Ana Roque de Duprey Elementary School', 'Average'),  
 ('Andrew Carnegie Elementary School', 'Average'),  
 ('Andrew Jackson Elementary Language Academy', 'Very Strong'),  
 ('Anna R. Langford Community Academy', 'Weak'),  
 ('Annie Keller Elementary Gifted Magnet School', 'Very Strong'),  
 ('Anthony Overton Elementary School', 'Weak'),  
 ('Ariel Elementary Community Academy', 'NDA'),  
 ('Arna Wendell Bontemps Elementary School', 'Weak'),  
 ('Arnold Mireles Elementary Academy', 'Weak'),  
 ('Arthur A Libby Elementary School', 'Weak'),  
 ('Arthur Dixon Elementary School', 'Average'),  
 ('Arthur E Canty Elementary School', 'Very Strong'),  
 ('Arthur R Ashe Elementary School', 'NDA'),  
 ('Asa Philip Randolph Elementary School', 'Very Weak'),  
 ('Ashburn Community Elementary School', 'Average'),  
 ('Augustus H Burley Elementary School', 'Very Strong'),  
 ('Austin Business and Entrepreneurship Academy High School', 'Weak'),  
 ('Austin O Sexton Elementary School', 'Weak'),  
 ('Austin Polytechnical Academy High School', 'Weak'),  
 ('Avalon Park Elementary School', 'Weak'),  
 ('Barbara Vick Early Childhood & Family Center', 'NDA'),  
 ('Belmont-Cragin Elementary School', 'Strong'),  
 ('Benito Juarez Community Academy High School', 'Average'),  
 ('Benjamin Banneker Elementary School', 'Weak'),  
 ('Benjamin E Mays Elementary Academy', 'Weak'),  
 ('Bernhard Moos Elementary School', 'Average'),  
 ('Betsy Ross Elementary School', 'Weak'),  
 ('Beulah Shoesmith Elementary School', 'Average'),  
 ('Blair Early Childhood Center', 'NDA'),  
 ('Bret Harte Elementary School', 'Strong'),  
 ('Brian Piccolo Elementary Specialty School', 'Weak'),  
 ('Brighton Park Elementary School', 'Average'),  
 ('Bronzeville Scholastic Academy High School', 'Average'),

('Burnham Elementary Inclusive Academy', 'Strong'),  
 ('Burnside Elementary Scholastic Academy', 'Average'),  
 ('Calmecca Academy of Fine Arts and Dual Language', 'Average'),  
 ('Carl Schurz High School', 'Average'),  
 ('Carl von Linne Elementary School', 'Strong'),  
 ('Carrie Jacobs Bond Elementary School', 'Average'),  
 ('Carroll-Rosenwald Specialty Elementary School', 'Weak'),  
 ('Carter G Woodson South Elementary School', 'Weak'),  
 ('Cesar E Chavez Multicultural Academic Center Elementary School', 'Average'),  
 ('Charles Allen Prosser Career Academy High School', 'Average'),  
 ('Charles Evans Hughes Elementary School', 'Average'),  
 ('Charles G Hammond Elementary School', 'Average'),  
 ('Charles Gates Dawes Elementary School', 'Average'),  
 ('Charles H Wacker Elementary School', 'Weak'),  
 ('Charles Kozminski Elementary Community Academy', 'Weak'),  
 ('Charles N Holden Elementary School', 'Average'),  
 ('Charles P Caldwell Academy of Math & Science Elementary School', 'Weak'),  
 ('Charles P Steinmetz Academic Centre High School', 'Weak'),  
 ('Charles R Darwin Elementary School', 'Average'),  
 ('Charles R Henderson Elementary School', 'Very Weak'),  
 ('Charles S Brownell Elementary School', 'Weak'),  
 ('Charles S Deneen Elementary School', 'Average'),  
 ('Charles Sumner Math & Science Community Acad Elementary School', 'Average'),  
 ('Charles W Earle Elementary School', 'Weak'),  
 ('Chicago Academy Elementary School', 'Strong'),  
 ('Chicago Academy High School', 'Average'),  
 ('Chicago High School for Agricultural Sciences', 'Very Strong'),  
 ('Chicago Military Academy High School', 'Weak'),  
 ('Chicago Vocational Career Academy High School', 'Weak'),  
 ('Christian Ebinger Elementary School', 'Strong'),  
 ('Christian Fenger Academy High School', 'Weak'),  
 ('Christopher Columbus Elementary School', 'Strong'),  
 ('Clara Barton Elementary School', 'Weak'),  
 ('Claremont Academy Elementary School', 'Weak'),  
 ('Collins Academy High School', 'Strong'),  
 ('Columbia Explorers Elementary Academy', 'Average'),  
 ('Countee Cullen Elementary School', 'Very Weak'),  
 ('Crispus Attucks Elementary School', 'Average'),  
 ('Crown Community Academy of Fine Arts Center Elementary School', 'Weak'),  
 ('Cyrus H McCormick Elementary School', 'NDA'),  
 ('Daniel Boone Elementary School', 'Average'),  
 ('Daniel C Beard Elementary School', 'NDA'),  
 ('Daniel Hale Williams Prep School of Medicine', 'Average'),  
 ('Daniel J Corkery Elementary School', 'Weak'),  
 ('Daniel R Cameron Elementary School', 'Average'),  
 ('Daniel S Wentworth Elementary School', 'Weak'),  
 ('Daniel Webster Elementary School', 'Average'),

('David G Farragut Career Academy High School', 'Average'),  
 ('DeVry University Advantage Academy High School', 'NDA'),  
 ('DeWitt Clinton Elementary School', 'Average'),  
 ('Dewey Elementary Academy of Fine Arts', 'Average'),  
 ('Disney II Magnet School', 'NDA'),  
 ('Donald Morrill Math & Science Elementary School', 'Weak'),  
 ('Douglas Taylor Elementary School', 'Weak'),  
 ('Dr Martin Luther King Jr College Prep High School', 'NDA'),  
 ('Dr Jorge Prieto Math and Science', 'NDA'),  
 ('Dumas Technology Academy', 'Very Weak'),  
 ('Dunne Technology Academy', 'Average'),  
 ('Durkin Park Elementary School', 'Strong'),  
 ('Dvorak Technology Academy', 'Average'),  
 ('Dyett High School', 'Weak'),  
 ('Edgar Allan Poe Elementary Classical School', 'Very Strong'),  
 ('Edgebrook Elementary School', 'Very Strong'),  
 ('Edison Park Elementary School', 'Very Strong'),  
 ('Edmond Burke Elementary School', 'Very Weak'),  
 ('Edward A Bouchet Math & Science Academy Elementary School', 'Weak'),  
 ('Edward Beasley Elementary Magnet Academic Center', 'Average'),  
 ('Edward C Delano Elementary School', 'Weak'),  
 ('Edward Coles Elementary Language Academy', 'Weak'),  
 ('Edward Everett Elementary School', 'NDA'),  
 ('Edward Jenner Elementary Academy of the Arts', 'Average'),  
 ('Edward K Ellington Elementary School', 'Weak'),  
 ('Edward N Hurley Elementary School', 'Strong'),  
 ('Edward Tilden Career Community Academy High School', 'Weak'),  
 ('Edward White Elementary Career Academy', 'Weak'),  
 ('Edwin G Foreman High School', 'Weak'),  
 ('Elaine O Goodlow Elementary Magnet School', 'Average'),  
 ('Eli Whitney Elementary School', 'Average'),  
 ('Elihu Yale Elementary School', 'Weak'),  
 ('Eliza Chappell Elementary School', 'Strong'),  
 ('Elizabeth H Sutherland Elementary School', 'Very Strong'),  
 ('Elizabeth Peabody Elementary School', 'Average'),  
 ('Ella Flagg Young Elementary School', 'Weak'),  
 ('Ellen H Richards Career Academy High School', 'Weak'),  
 ('Ellen Mitchell Elementary School', 'Very Strong'),  
 ('Emil G Hirsch Metropolitan High School', 'Very Weak'),  
 ('Emiliano Zapata Elementary Academy', 'Strong'),  
 ('Emmett Louis Till Math and Science Academy', 'Weak'),  
 ('Enrico Fermi Elementary School', 'Weak'),  
 ('Enrico Tonti Elementary School', 'NDA'),  
 ('Eric Solorio Academy High School', 'Strong'),  
 ('Ernst Prussing Elementary School', 'Strong'),  
 ('Esmond Elementary School', 'Weak'),  
 ('Eugene Field Elementary School', 'Average'),



('Everett McKinley Dirksen Elementary School', 'Average'),  
 ('Evergreen Academy Middle School', 'Strong'),  
 ('Fairfield Elementary Academy', 'Weak'),  
 ('Federico Garcia Lorca Elementary School', 'Average'),  
 ('Ferdinand Peck Elementary School', 'Average'),  
 ('Fernwood Elementary School', 'Weak'),  
 ('Florence B Price Elementary School', 'Weak'),  
 ('Florence Nightingale Elementary School', 'Weak'),  
 ('Fort Dearborn Elementary School', 'Weak'),  
 ('Foster Park Elementary School', 'Very Weak'),  
 ('Francis M McKay Elementary School', 'Weak'),  
 ('Francis Parkman Elementary School', 'Weak'),  
 ('Francis Scott Key Elementary School', 'Weak'),  
 ('Francis W Parker Elementary Community Academy', 'Weak'),  
 ('Francisco I Madero Middle School', 'Average'),  
 ('Frank I Bennett Elementary School', 'Average'),  
 ('Frank L Gillespie Elementary School', 'Weak'),  
 ('Frank W Gunsaulus Elementary Scholastic Academy', 'Average'),  
 ('Frank W Reilly Elementary School', 'Average'),  
 ('Franklin Elementary Fine Arts Center', 'Very Strong'),  
 ('Franz Peter Schubert Elementary School', 'NDA'),  
 ('Frazier Prospective IB Magnet Elementary School', 'Strong'),  
 ('Frederic Chopin Elementary School', 'Very Strong'),  
 ('Frederick A Douglass Academy High School', 'Average'),  
 ('Frederick Funston Elementary School', 'Very Weak'),  
 ('Frederick Stock Elementary School', 'NDA'),  
 ('Friedrich Ludwig Jahn Elementary School', 'Strong'),  
 ('Friedrich W von Steuben Metropolitan Science High School', 'Strong'),  
 ('Gage Park High School', 'Very Weak'),  
 ('Galileo Math & Science Scholastic Academy Elementary School', 'Strong'),  
 ('Garrett A Morgan Elementary School', 'Weak'),  
 ('Genevieve Melody Elementary School', 'Strong'),  
 ('George Armstrong International Studies Elementary School', 'Average'),  
 ('George B McClellan Elementary School', 'Average'),  
 ('George B Swift Elementary Specialty School', 'Strong'),  
 ('George F Cassell Elementary School', 'Strong'),  
 ('George H Corliss High School', 'Weak'),  
 ('George Leland Elementary School', 'NDA'),  
 ('George M Pullman Elementary School', 'Average'),  
 ('George Manierre Elementary School', 'Average'),  
 ('George Rogers Clark Elementary School', 'Weak'),  
 ('George W Curtis Elementary School', 'Weak'),  
 ('George W Tilton Elementary School', 'Very Weak'),  
 ('George Washington Carver Military Academy High School', 'Average'),  
 ('George Washington Carver Primary School', 'Weak'),  
 ('George Washington Elementary School', 'Average'),  
 ('George Washington High School', 'Average'),

('George Westinghouse High School', 'Strong'),  
 ('Gerald Delgado Kanoon Elementary Magnet School', 'Average'),  
 ('Graeme Stewart Elementary School', 'Average'),  
 ('Granville T Woods Math & Science Academy Elementary School', 'Weak'),  
 ('Greater Lawndale High School For Social Justice', 'Average'),  
 ('Grover Cleveland Elementary School', 'Strong'),  
 ('Guglielmo Marconi Elementary Community Academy', 'Weak'),  
 ('Gurdon S Hubbard High School', 'Average'),  
 ('Gwendolyn Brooks College Preparatory Academy High School', 'Strong'),  
 ('Hannah G Solomon Elementary School', 'Strong'),  
 ('Hanson Park Elementary School', 'Weak'),  
 ('Harold Washington Elementary School', 'Weak'),  
 ('Harriet Beecher Stowe Elementary School', 'Weak'),  
 ('Harriet E Sayre Elementary Language Academy', 'Strong'),  
 ('Hawthorne Elementary Scholastic Academy', 'Very Strong'),  
 ('Helen M Hefferan Elementary School', 'Weak'),  
 ('Helen Peirce International Studies Elementary School', 'Average'),  
 ('Helge A Haugan Elementary School', 'Average'),  
 ('Henry Clay Elementary School', 'Weak'),  
 ('Henry D Lloyd Elementary School', 'NDA'),  
 ('Henry H Nash Elementary School', 'Average'),  
 ('Henry O Tanner Elementary School', 'Weak'),  
 ('Henry R Clissold Elementary School', 'Average'),  
 ('High School of Leadership at South Shore', 'NDA'),  
 ('Hiram H Belding Elementary School', 'Strong'),  
 ('Hope College Preparatory High School', 'Weak'),  
 ('Horace Greeley Elementary School', 'Strong'),  
 ('Horace Mann Elementary School', 'Weak'),  
 ('Horatio May Elementary Community Academy', 'Average'),  
 ('Hyde Park Academy High School', 'Weak'),  
 ('Hyman G Rickover Naval Academy High School', 'Strong'),  
 ('Ida B Wells Preparatory Elementary Academy', 'Average'),  
 ('Ignance Paderewski Elementary Learning Academy', 'Weak'),  
 ('Infinity Math Science and Technology High School', 'Average'),  
 ('Inter-American Elementary Magnet School', 'Strong'),  
 ('Ira F Aldridge Elementary School', 'Weak'),  
 ('Irene C. Hernandez Middle School for the Advancement of Science', 'Weak'),  
 ('Irma C Ruiz Elementary School', 'Average'),  
 ('Irvin C Mollison Elementary School', 'Average'),  
 ('Isabelle C O'Keefe Elementary School', 'Very Weak'),  
 ('Jackie Robinson Elementary School', 'NDA'),  
 ('Jacob Beidler Elementary School', 'Strong'),  
 ('Jacqueline B Vaughn Occupational High School', 'Average'),  
 ('James B Farnsworth Elementary School', 'Average'),  
 ('James B McPherson Elementary School', 'Strong'),  
 ('James E McDade Elementary Classical School', 'Very Strong'),  
 ('James G Blaine Elementary School', 'Very Strong'),

('James Hedges Elementary School', 'Weak'),  
 ('James Madison Elementary School', 'Weak'),  
 ('James Monroe Elementary School', 'Average'),  
 ('James N Thorp Elementary School', 'Weak'),  
 ('James Otis Elementary School', 'Very Strong'),  
 ('James R Doolittle Jr Elementary School', 'Weak'),  
 ('James Russell Lowell Elementary School', 'Weak'),  
 ('James Shields Elementary School', 'Weak'),  
 ('James Wadsworth Elementary School', 'NDA'),  
 ('James Ward Elementary School', 'Average'),  
 ('James Weldon Johnson Elementary School', 'Strong'),  
 ('Jane A Neil Elementary School', 'Average'),  
 ('Jane Addams Elementary School', 'Average'),  
 ('Jean Baptiste Beaubien Elementary School', 'Strong'),  
 ('Jean D Lafayette Elementary School', 'Average'),  
 ('Jensen Elementary Scholastic Academy', 'Weak'),  
 ('Jesse Owens Elementary Community Academy', 'NDA'),  
 ('Jesse Sherwood Elementary School', 'Weak'),  
 ('Johann W von Goethe Elementary School', 'Strong'),  
 ('John A Walsh Elementary School', 'Strong'),  
 ('John B Drake Elementary School', 'Average'),  
 ('John B Murphy Elementary School', 'Very Strong'),  
 ('John Barry Elementary School', 'Weak'),  
 ('John C Burroughs Elementary School', 'Average'),  
 ('John C Coonley Elementary School', 'Very Strong'),  
 ('John C Dore Elementary School', 'Strong'),  
 ('John Calhoun North Elementary School', 'Average'),  
 ('John Charles Haines Elementary School', 'Weak'),  
 ('John D Shoop Math-Science Technical Academy Elementary School', 'Weak'),  
 ('John F Eberhart Elementary School', 'Average'),  
 ('John F Kennedy High School', 'Average'),  
 ('John Fiske Elementary School', 'Very Weak'),  
 ('John Foster Dulles Elementary School', 'Average'),  
 ('John Greenleaf Whittier Elementary School', 'Strong'),  
 ('John H Hamline Elementary School', 'Weak'),  
 ('John H Kinzie Elementary School', 'Strong'),  
 ('John H Vanderpoel Elementary Magnet School', 'Strong'),  
 ('John Hancock College Preparatory High School', 'Average'),  
 ('John Harvard Elementary School of Excellence', 'Average'),  
 ('John Hay Elementary Community Academy', 'Average'),  
 ('John J Audubon Elementary School', 'Very Strong'),  
 ('John J Pershing Elementary Humanities Magnet', 'NDA'),  
 ('John L Marsh Elementary School', 'Strong'),  
 ('John M Harlan Community Academy High School', 'NDA'),  
 ('John M Smyth Elementary School', 'Weak'),  
 ('John Marshall Metropolitan High School', 'Average'),  
 ('John Milton Gregory Elementary School', 'Average'),

('John P Altgeld Elementary School', 'Average'),  
 ('John Palmer Elementary School', 'Strong'),  
 ('John Spry Elementary Community School', 'Strong'),  
 ('John T McCutcheon Elementary School', 'Average'),  
 ('John T Pirie Fine Arts & Academic Center Elementary School', 'Weak'),  
 ('John W Cook Elementary School', 'NDA'),  
 ('John W Garvy Elementary School', 'Strong'),  
 ('John Whistler Elementary School', 'Average'),  
 ('Johnnie Colemon Elementary Academy', 'Strong'),  
 ('Jonathan Burr Elementary School', 'Strong'),  
 ('Jonathan Y Scammon Elementary School', 'Average'),  
 ('Jordan Elementary Community School', 'Strong'),  
 ('Jose De Diego Elementary Community Academy', 'Average'),  
 ('Josefa Ortiz De Dominguez Elementary School', 'NDA'),  
 ('Joseph Brennemann Elementary School', 'Average'),  
 ('Joseph E Gary Elementary School', 'Weak'),  
 ('Joseph Jungman Elementary School', 'Weak'),  
 ('Joseph Kellman Corporate Community Elementary School', 'Average'),  
 ('Joseph Lovett Elementary School', 'Average'),  
 ('Joseph Stockton Elementary School', 'Weak'),  
 ('Joseph Warren Elementary School', 'Weak'),  
 ('Josephine C Locke Elementary School', 'Average'),  
 ('Joshua D Kershaw Elementary School', 'Strong'),  
 ('Josiah Pickard Elementary School', 'Average'),  
 ('Joyce Kilmer Elementary School', 'NDA'),  
 ('Julia C Lathrop Elementary School', 'Strong'),  
 ('Julia Ward Howe Elementary School of Excellence', 'Strong'),  
 ('Kate S Buckingham Special Education Center', 'Weak'),  
 ('Kate S Kellogg Elementary School', 'Strong'),  
 ('Kelvyn Park High School', 'Weak'),  
 ('Kenwood Academy High School', 'Strong'),  
 ('LaSalle Elementary Language Academy', 'Very Strong'),  
 ('LaSalle II Magnet Elementary School', 'Strong'),  
 ('Lake View High School', 'Strong'),  
 ('Langston Hughes Elementary School', 'Weak'),  
 ('Laughlin Falconer Elementary School', 'Average'),  
 ('Laura S Ward Elementary School', 'NDA'),  
 ('Lawndale Elementary Community Academy', 'NDA'),  
 ('Lazaro Cardenas Elementary School', 'NDA'),  
 ('Leif Ericson Elementary Scholastic Academy', 'Weak'),  
 ('Lenart Elementary Regional Gifted Center', 'Strong'),  
 ('Leslie Lewis Elementary School', 'Weak'),  
 ('Lincoln Park High School', 'Strong'),  
 ('Lionel Hampton Fine & Performing Arts Elementary School', 'Average'),  
 ('Little Village Elementary School', 'Average'),  
 ('Logandale Middle School', 'Average'),  
 ('Lorenz Brentano Math & Science Academy Elementary School', 'Average'),

('Louis A Agassiz Elementary School', 'Average'),  
 ('Louis Armstrong Math & Science Elementary School', 'Average'),  
 ('Louis Nettelhorst Elementary School', 'Average'),  
 ('Louis Pasteur Elementary School', 'Average'),  
 ('Louisa May Alcott Elementary School', 'NDA'),  
 ('Ludwig Van Beethoven Elementary School', 'Average'),  
 ('Luke O'Toole Elementary School', 'Very Weak'),  
 ('Luther Burbank Elementary School', 'Weak'),  
 ('Lyman A Budlong Elementary School', 'Average'),  
 ('Lyman Trumbull Elementary School', 'Average'),  
 ('Mahalia Jackson Elementary School', 'Weak'),  
 ('Mancel Talcott Elementary School', 'Strong'),  
 ('Manley Career Academy High School', 'Average'),  
 ('Manuel Perez Elementary School', 'Average'),  
 ('Marcus Mozhiah Garvey Elementary School', 'Average'),  
 ('Maria Saucedo Elementary Scholastic Academy', 'Strong'),  
 ('Mariano Azuela Elementary School', 'Average'),  
 ('Marie Sklodowska Curie Metropolitan High School', 'Average'),  
 ('Marine Military Math and Science Academy', 'Average'),  
 ('Mark Sheridan Elementary Math & Science Academy', 'Strong'),  
 ('Mark Skinner Elementary School', 'Very Strong'),  
 ('Mark Twain Elementary School', 'Strong'),  
 ('Marquette Elementary School', 'Very Weak'),  
 ('Martha Ruggles Elementary School', 'Average'),  
 ('Martin A Ryerson Elementary School', 'Average'),  
 ('Marvin Camras Elementary School', 'Average'),  
 ('Mary E Courtenay Elementary Language Arts Center', 'Very Strong'),  
 ('Mary E McDowell Elementary School', 'NDA'),  
 ('Mary Gage Peterson Elementary School', 'Strong'),  
 ('Mary Lyon Elementary School', 'Average'),  
 ('Mary Mapes Dodge Elementary Renaissance Academy', 'Average'),  
 ('Mary McLeod Bethune Elementary School', 'Average'),  
 ('Mason High School', 'Average'),  
 ('Matthew A Henson Elementary School', 'Weak'),  
 ('Matthew Gallistel Elementary Language Academy', 'Average'),  
 ('Medgar Evers Elementary School', 'Weak'),  
 ('Melville W Fuller Elementary School', 'Weak'),  
 ('Michael Faraday Elementary School', 'Weak'),  
 ('Michael M Byrne Elementary School', 'Strong'),  
 ('Michele Clark Academic Prep Magnet High School', 'NDA'),  
 ('Mildred I Lavizzo Elementary School', 'Very Weak'),  
 ('Milton Brunson Math & Science Specialty Elementary School', 'Weak'),  
 ('Minnie Mars Jamieson Elementary School', 'Strong'),  
 ('Miriam G Canter Middle School', 'Average'),  
 ('Morgan Park High School', 'Average'),  
 ('Morton School of Excellence', 'Average'),  
 ('Moses Montefiore Special Elementary School', 'Weak'),

('Mount Greenwood Elementary School', 'Very Strong'),  
 ('Mount Vernon Elementary School', 'Weak'),  
 ('Multicultural Academy of Scholarship', 'Average'),  
 ('Myra Bradwell Communications Arts & Sciences Elementary School', 'Weak'),  
 ('Nathan Hale Elementary School', 'Average'),  
 ('Nathan R Goldblatt Elementary School', 'Average'),  
 ('Nathan S Davis Elementary School', 'Average'),  
 ('Nathanael Greene Elementary School', 'NDA'),  
 ('Nathaniel Pope Elementary School', 'Average'),  
 ('National Teachers Elementary Academy', 'Strong'),  
 ('Neal F Simeon Career Academy High School', 'Average'),  
 ('Near North Elementary School', 'Average'),  
 ('New Field Elementary School', 'NDA'),  
 ('New Millennium High School of Health at Bowen', 'Very Weak'),  
 ('Newton Bateman Elementary School', 'Average'),  
 ('Nicholas Senn High School', 'Average'),  
 ('Nicholson Technology Academy', 'Average'),  
 ('Ninos Heroes Elementary Academic Center', 'Weak'),  
 ('Norman A Bridge Elementary School', 'Strong'),  
 ('North River Elementary School', 'Strong'),  
 ('North-Grand High School', 'Average'),  
 ('Northside College Preparatory High School', 'Very Strong'),  
 ('Northside Learning Center High School', 'Very Strong'),  
 ('Northwest Middle School', 'Weak'),  
 ('Norwood Park Elementary School', 'Very Strong'),  
 ('Ogden International High School', 'Average'),  
 ('Ole A Thorp Elementary Scholastic Academy', 'Strong'),  
 ('Oliver S Westcott Elementary School', 'Weak'),  
 ('Oliver Wendell Holmes Elementary School', 'Weak'),  
 ('Oriole Park Elementary School', 'Very Strong'),  
 ('Orozco Fine Arts & Sciences Elementary School', 'Average'),  
 ('Orr Academy High School', 'NDA'),  
 ('Orville T Bright Elementary School', 'Very Weak'),  
 ('Oscar DePriest Elementary School', 'Weak'),  
 ('Oscar F Mayer Elementary School', 'Strong'),  
 ('Pablo Casals Elementary School', 'NDA'),  
 ('Park Manor Elementary School', 'Weak'),  
 ('Parkside Elementary Community Academy', 'NDA'),  
 ('Patrick Henry Elementary School', 'Average'),  
 ('Paul Cuffe Math-Science Technology Academy Elementary School', 'Average'),  
 ('Paul Laurence Dunbar Career Academy High School', 'Weak'),  
 ('Paul Revere Elementary School', 'Weak'),  
 ('Paul Robeson High School', 'Weak'),  
 ('Percy L Julian High School', 'Weak'),  
 ('Perkins Bass Elementary School', 'Weak'),  
 ('Pershing West Middle School', 'Average'),  
 ('Peter A Reinberg Elementary School', 'Strong'),

('Peter Cooper Elementary Dual Language Academy', 'NDA'),  
 ('Philip Rogers Elementary School', 'Very Strong'),  
 ('Phillip D Armour Elementary School', 'Weak'),  
 ('Phillip Murray Elementary Language Academy', 'Strong'),  
 ('Phobe Apperson Hearst Elementary School', 'Weak'),  
 ('Phoenix Military Academy High School', 'Average'),  
 ('Pilsen Elementary Community Academy', 'Average'),  
 ('Portage Park Elementary School', 'Strong'),  
 ('Pulaski International Academy Elementary School', 'Strong'),  
 ('Rachel Carson Elementary School', 'Weak'),  
 ('Ralph H Metcalfe Elementary Community Academy', 'NDA'),  
 ('Ravenswood Elementary School', 'Average'),  
 ('Ray Graham Training Center High School', 'Very Strong'),  
 ('Richard Edwards Elementary School', 'Average'),  
 ('Richard Henry Lee Elementary School', 'Average'),  
 ('Richard J Daley Elementary Academy', 'Weak'),  
 ('Richard J Oglesby Elementary School', 'Average'),  
 ('Richard T Crane Technical Preparatory High School', 'Average'),  
 ('Richard Yates Elementary School', 'Average'),  
 ('Roald Amundsen High School', 'Average'),  
 ('Robert A Black Magnet Elementary School', 'Strong'),  
 ('Robert Emmet Elementary School', 'Weak'),  
 ('Robert Fulton Elementary School', 'Average'),  
 ('Robert H Lawrence Elementary School', 'Very Weak'),  
 ('Robert Healy Elementary School', 'Strong'),  
 ('Robert L Grimes Elementary School', 'Strong'),  
 ('Robert Lindblom Math & Science Academy High School', 'Strong'),  
 ('Robert Nathaniel Dett Elementary School', 'Average'),  
 ('Roberto Clemente Community Academy High School', 'Average'),  
 ('Rodolfo Lozano Bilingual & International Center Elementary School',  
 'Average'),  
 ('Roger C Sullivan High School', 'Weak'),  
 ('Ronald Brown Elementary Community Academy', 'Weak'),  
 ('Ronald E McNair Elementary School', 'Weak'),  
 ('Rosario Castellanos Elementary School', 'Weak'),  
 ('Roswell B Mason Elementary School', 'Weak'),  
 ('Rudyard Kipling Elementary School', 'Average'),  
 ('Rueben Salazar Elementary Bilingual Center', 'Strong'),  
 ('Rufus M Hitch Elementary School', 'Strong'),  
 ('Salmon P Chase Elementary School', 'Average'),  
 ('Samuel Gompers Fine Arts Options Elementary School', 'Weak'),  
 ('Sauganash Elementary School', 'Very Strong'),  
 ('Scott Joplin Elementary School', 'Weak'),  
 ('Sharon Christa McAuliffe Elementary School', 'NDA'),  
 ('Sidney Sawyer Elementary School', 'Average'),  
 ('Simon Guggenheim Elementary School', 'Weak'),  
 ('Sir Miles Davis Magnet Elementary Academy', 'Weak'),

('Skinner North', 'NDA'),  
 ('Socorro Sandoval Elementary School', 'NDA'),  
 ('Songhai Elementary Learning Institute', 'Very Weak'),  
 ('South Loop Elementary School', 'Very Strong'),  
 ('South Shore Fine Arts Academy', 'NDA'),  
 ('Southside Occupational Academy High School', 'NDA'),  
 ('Spencer Technology Academy', 'Weak'),  
 ('Spry Community Links High School', 'Strong'),  
 ('Stephen Decatur Classical Elementary School', 'Very Strong'),  
 ('Stephen F Gale Elementary Community Academy', 'Weak'),  
 ('Stephen K Hayt Elementary School', 'Strong'),  
 ('Stephen T Mather High School', 'Average'),  
 ('Stone Elementary Scholastic Academy', 'Strong'),  
 ('Suder Montessori Magnet Elementary School', 'NDA'),  
 ('TEAM Englewood Community Academy High School', 'Average'),  
 ('Talman Elementary School', 'Very Strong'),  
 ('Tarkington School of Excellence Elementary School', 'Average'),  
 ('Telpochcalli Elementary School', 'Average'),  
 ('Theodore Herzl Elementary School', 'Average'),  
 ('Theodore Roosevelt High School', 'Average'),  
 ('Theophilus Schmid Elementary School', 'Average'),  
 ('Thomas A Edison Regional Gifted Center Elementary School', 'Very Strong'),  
 ('Thomas A Hendricks Elementary Community Academy', 'Weak'),  
 ('Thomas Chalmers Specialty Elementary School', 'Weak'),  
 ('Thomas Drummond Elementary School', 'Strong'),  
 ('Thomas Hoyne Elementary School', 'Strong'),  
 ('Thomas J Higgins Elementary Community Academy', 'NDA'),  
 ('Thomas J Waters Elementary School', 'Very Strong'),  
 ('Thomas Kelly High School', 'Weak'),  
 ('Thurgood Marshall Middle School', 'Weak'),  
 ('Turner-Drew Elementary Language Academy', 'Average'),  
 ('Uplift Community High School', 'Average'),  
 ('VOISE Academy High School', 'Average'),  
 ('Velma F Thomas Early Childhood Center', 'NDA'),  
 ('Victor Herbert Elementary School', 'Average'),  
 ('Virgil Grissom Elementary School', 'Strong'),  
 ('Walt Disney Magnet Elementary School', 'NDA'),  
 ('Walter L Newberry Math & Science Academy Elementary School', 'Strong'),  
 ('Walter Payton College Preparatory High School', 'Very Strong'),  
 ('Walter Q Gresham Elementary School', 'Weak'),  
 ('Walter Reed Elementary School', 'Weak'),  
 ('Walter S Christopher Elementary School', 'NDA'),  
 ('Washington D Smyser Elementary School', 'Average'),  
 ('Washington Irving Elementary School', 'Average'),  
 ('Wells Community Academy High School', 'Average'),  
 ('Wendell E Green Elementary School', 'Weak'),  
 ('Wendell Phillips Academy High School', 'NDA'),



```
(
  ('Wendell Smith Elementary School', 'Weak'),
  ('West Park Elementary Academy', 'Weak'),
  ('West Pullman Elementary School', 'Weak'),
  ('West Ridge Elementary School', 'Strong'),
  ('Whitney M Young Magnet High School', 'Very Strong'),
  ('Wildwood Elementary School', 'Very Strong'),
  ('Willa Cather Elementary School', 'Strong'),
  ('William A Hinton Elementary School', 'Very Weak'),
  ('William B Ogden Elementary School', 'NDA'),
  ('William Bishop Owen Scholastic Academy Elementary School', 'Average'),
  ('William C Goudy Elementary School', 'Strong'),
  ('William C Reavis Math & Science Specialty Elementary School', 'Average'),
  ('William E B Dubois Elementary School', 'Average'),
  ('William E Dever Elementary School', 'Strong'),
  ('William F Finkl Elementary School', 'Average'),
  ('William G Hibbard Elementary School', 'NDA'),
  ('William H Brown Elementary School', 'Weak'),
  ('William H King Elementary School', 'Average'),
  ('William H Prescott Elementary School', 'Very Strong'),
  ('William H Ray Elementary School', 'Strong'),
  ('William H Ryder Math & Science Specialty Elementary School', 'Weak'),
  ('William H Seward Communication Arts Academy Elementary School', 'Average'),
  ('William Howard Taft High School', 'Strong'),
  ('William J & Charles H Mayo Elementary School', 'Average'),
  ('William J Bogan High School', 'Weak'),
  ('William J Onahan Elementary School', 'Strong'),
  ('William Jones College Preparatory High School', 'Very Strong'),
  ('William K New Sullivan Elementary School', 'Weak'),
  ('William P Gray Elementary School', 'Average'),
  ('William P Nixon Elementary School', 'Average'),
  ('William Penn Elementary School', 'Strong'),
  ('William Rainey Harper High School', 'Weak'),
  ('William T Sherman Elementary School', 'Weak'),
  ('William W Carter Elementary School', 'Very Weak'),
  ('Williams Multiplex Elementary School', 'NDA'),
  ('Williams Preparatory Academy Middle School', 'Average'),
  ('Wilma Rudolph Elementary Learning Center', 'NDA'),
  ('Wolfgang A Mozart Elementary School', 'Average'),
  ('Woodlawn Community Elementary School', 'Strong'),
  ('World Language Academy High School', 'Average')]

```

### 1.1.12 Exercise 3: Creating a Stored Procedure

The icon fields are calculated based on the value in the corresponding score field. You need to make sure that when a score field is updated, the icon field is updated too. To do this, you will write a stored procedure that receives the school id and a leaders score as input parameters, calculates the icon setting and updates the fields appropriately.

Question 1 Write the structure of a query to create or replace a stored procedure called `UPDATE_LEADERS_SCORE` that takes a `in_School_ID` parameter as an integer and a `in_Leader_Score` parameter as an integer. Don't forget to use the `#SET TERMINATOR` statement to use the `@` for the `CREATE` statement terminator. Take a screenshot showing the SQL query.

```
[31]: %sql
#SET TERMINATOR @
@ CREATE PROCEDURE UPDATE_LEADERS_SCORE(
    IN IN_SCHOOL_ID INTEGER,
    IN IN_LEADER_SCORE INTEGER)
LANGUAGE SQL
READS SQL DATA
DYNAMIC RESULT SET 1
BEGIN
    DECLARE C1 CURSOR
    WITH RETURN FOR
    SELECT * FROM CHICAGO_PUBLIC_SCHOOLS;
    OPEN C1;
    END
```

```
* ibm_db_sa://pvm06411:***@764264db-9824-4b7c-82df-40d1b13897c2.bs2io90l08kqb1o
d8l1cg.databases.appdomain.cloud:32536/bludb
Done.
```

[31]: []

### 1.1.13 Question 2

Inside your stored procedure, write a SQL statement to update the `Leaders_Score` field in the `CHICAGO_PUBLIC_SCHOOLS` table for the school identified by `in_School_ID` to the value in the `in_Leader_Score` parameter.

```
[32]: %sql
#SET TERMINATOR @
CREATE PROCEDURE UPDATE_LEADERS_SCORE(
    IN IN_SCHOOL_ID INTEGER,
    IN IN_LEADER_SCORE INTEGER)
LANGUAGE SQL
MODIFIES SQL DATA
BEGIN
    UPDATE CHICAGO_PUBLIC_SCHOOLS
    SET "LEADERS_SCORE" = IN_LEADER_SCORE
    WHERE "SCHOOL_ID" = IN_SCHOOL_ID;
END
@
```

```
* ibm_db_sa://pvm06411:***@764264db-9824-4b7c-82df-40d1b13897c2.bs2io90l08kqb1o
d8l1cg.databases.appdomain.cloud:32536/bludb
Done.
```

[32]: []

### 1.1.14 Question 3

Inside your stored procedure, write a SQL IF statement to update the Leaders\_Icon field in the CHICAGO\_PUBLIC\_SCHOOLS table for the school identified by in\_School\_ID using the following information.

```
[33]: %sql
#SET TERMINATOR @
CREATE OR REPLACE PROCEDURE UPDATE_LEADERS_SCORE(
    IN IN_SCHOOL_ID INTEGER,
    IN IN_LEADER_SCORE INTEGER)
LANGUAGE SQL
MODIFIES SQL DATA
BEGIN
    UPDATE CHICAGO_PUBLIC_SCHOOLS
    SET "LEADERS_SCORE" = IN_LEADER_SCORE
    WHERE "SCHOOL_ID" = IN_SCHOOL_ID;
    IF IN_LEADER_SCORE>0 AND IN_LEADER_SCORE<20
    THEN
        UPDATE CHICAGO_PUBLIC_SCHOOLS SET "LEADERS_ICON"='Very Weak';
    ELSEIF IN_LEADER_SCORE<40 THEN
        UPDATE CHICAGO_PUBLIC_SCHOOLS SET "LEADERS_ICON"='Weak';
    ELSEIF IN_LEADER_SCORE<60 THEN
        UPDATE CHICAGO_PUBLIC_SCHOOLS SET "LEADERS_ICON"='Average';
    ELSEIF IN_LEADER_SCORE<80 THEN
        UPDATE CHICAGO_PUBLIC_SCHOOLS SET "LEADERS_ICON"='Strong';
    ELSEIF IN_LEADER_SCORE<100 THEN
        UPDATE CHICAGO_PUBLIC_SCHOOLS SET "LEADERS_ICON"='Very Strong';
    END IF;
END
@
```

```
* ibm_db_sa://pvm06411:***@764264db-9824-4b7c-82df-40d1b13897c2.bs2io90l08kqb1o
d8l1cg.databases.appdomain.cloud:32536/bludb
Done.
```

[33]: []

### 1.1.15 Exercise 4: Using Transactions

You realise that if someone calls your code with a score outside of the allowed range (0-99), then the score will be updated with the invalid data and the icon will remain at its previous value. There

are various ways to avoid this problem, one of which is using a transaction.

### 1.1.16 Question 1

Update your stored procedure definition. Add a generic ELSE clause to the IF statement that rolls back the current work if the score did not fit any of the preceding categories.

```
[36]: %sql
#SET TERMINATOR @
CREATE OR REPLACE PROCEDURE UPDATE_LEADERS_SCORE(
    IN IN_SCHOOL_ID INTEGER,
    IN IN_LEADER_SCORE INTEGER)
LANGUAGE SQL
BEGIN
    UPDATE CHICAGO_PUBLIC_SCHOOLS
    SET "LEADERS_SCORE" = IN_LEADER_SCORE
    WHERE "SCHOOL_ID" = IN_SCHOOL_ID;
    IF IN_LEADER_SCORE>0 AND IN_LEADER_SCORE<20 THEN
        UPDATE CHICAGO_PUBLIC_SCHOOLS SET "LEADERS_ICON"='Very Weak';
    ELSEIF IN_LEADER_SCORE<40 THEN
        UPDATE CHICAGO_PUBLIC_SCHOOLS SET "LEADERS_ICON"='Weak';
    ELSEIF IN_LEADER_SCORE<60 THEN
        UPDATE CHICAGO_PUBLIC_SCHOOLS SET "LEADERS_ICON"='Average';
    ELSEIF IN_LEADER_SCORE<80 THEN
        UPDATE CHICAGO_PUBLIC_SCHOOLS SET "LEADERS_ICON"='Strong';
    ELSEIF IN_LEADER_SCORE<100 THEN
        UPDATE CHICAGO_PUBLIC_SCHOOLS SET "LEADERS_ICON"='Very Strong';
    ELSE
        ROLLBACK WORK;
    END IF;
END @
```

```
* ibm_db_sa://pvm06411:***@764264db-9824-4b7c-82df-40d1b13897c2.bs2io90108kqb1o
d8l1cg.databases.appdomain.cloud:32536/bludb
Done.
```

```
[36]: []
```

### 1.1.17 Question 2

Update your stored procedure definition again. Add a statement to commit the current unit of work at the end of the procedure.

```
[37]: %sql
#SET TERMINATOR @
CREATE OR REPLACE PROCEDURE UPDATE_LEADERS_SCORE(
    IN IN_SCHOOL_ID INTEGER,
    IN IN_LEADER_SCORE INTEGER)
```

```

LANGUAGE SQL
BEGIN
  UPDATE CHICAGO_PUBLIC_SCHOOLS
  SET "LEADERS_SCORE" = IN_LEADER_SCORE
  WHERE "SCHOOL_ID" = IN_SCHOOL_ID;
  IF IN_LEADER_SCORE>0 AND IN_LEADER_SCORE<20 THEN
    UPDATE CHICAGO_PUBLIC_SCHOOLS SET "LEADERS_ICON"='Very Weak';
  ELSEIF IN_LEADER_SCORE<40 THEN
    UPDATE CHICAGO_PUBLIC_SCHOOLS SET "LEADERS_ICON"='Weak';
  ELSEIF IN_LEADER_SCORE<60 THEN
    UPDATE CHICAGO_PUBLIC_SCHOOLS SET "LEADERS_ICON"='Average';
  ELSEIF IN_LEADER_SCORE<80 THEN
    UPDATE CHICAGO_PUBLIC_SCHOOLS SET "LEADERS_ICON"='Strong';
  ELSEIF IN_LEADER_SCORE<100 THEN
    UPDATE CHICAGO_PUBLIC_SCHOOLS SET "LEADERS_ICON"='Very Strong';
  ELSE
    ROLLBACK WORK;
  END IF;
  COMMIT WORK;

END @

```

```

* ibm_db_sa://pvm06411:***@764264db-9824-4b7c-82df-40d1b13897c2.bs2io90108kqb1o
d8l1cg.databases.appdomain.cloud:32536/bludb
Done.

```

[37]: []

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## 1.2 Author(s)

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Ramesh Sannareddy

## 1.3 Other Contributor(s)

Rose Malcolm

## 1.4 Change log

Date	Version	Changed by	Change Description
02-July-21	1.2	Lakshmi Holla	Made changes in Hint section.
27-Jan-21	1.1	Rose Malcolm	Added instructions to go to Exercise 1 if tables already created and populated.
05-Jun-20	1.0	Rose Malcolm	Initial version created

##

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