



**CS 341, Fall 2024**  
**Project 2 – Chicago Lobbyist Database App**  
**Part 1 Due: Monday 10/7 at 11:59pm**  
**Part 2 Due: Friday 10/11 at 11:59pm**  
**Part 3 Due: Wednesday 10/16 at 11:59pm**

## Overview

The goal of this project is to write a console-based database application in Python, this time using an N-tier design. The database used for this project consists of information pertaining to registered lobbyists in Chicago, their employers, their clients, and their compensation.

The project will be developed in three parts. You must complete each part by its respective deadline to earn full credit.

- Part 1 of the project is to build and test the **data access tier**. This is worth 10 points out of the 100 points for the whole project.
- Part 2 of the project is to build and test the **object mapping tier**. This is worth 60 points out of the 100 points for the whole project.
- Part 3 of the project is to build and test the **presentation tier**. This is worth 30 points out of the 100 points for the whole project.

You will submit each part of the project to Gradescope. There is no plotting in this project.

## The Chicago Lobbyist Database

A **lobbyist** is a person who tries to influence a politician or official group to write or vote on legislation in a particular way. In Chicago, the Board of Ethics regulates these individuals. They are required to register with the Board each year, and to file reports about their lobbying activities each quarter. For more information and explanation of the terminology, see the following links:

- <https://www.chicago.gov/city/en/depts/ethics/provdrs/lobby.html>
- [https://www.chicago.gov/content/dam/city/depts/ethics/general/LobbyistStuff/PDF\\_FORMS/Infosheet.pdf](https://www.chicago.gov/content/dam/city/depts/ethics/general/LobbyistStuff/PDF_FORMS/Infosheet.pdf)

The Chicago Lobbyist database consists of 8 tables: LobbyistInfo, LobbyistYears, EmployerInfo, EmployerYears, ClientInfo, ClientYears, LobbyistAndEmployer, and Compensation. For more information on the design of the database, the primary and foreign keys, and the column types, run the `.schema` command.



**CS 341, Fall 2024**  
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**Part 2 Due: Friday 10/11 at 11:59pm**  
**Part 3 Due: Wednesday 10/16 at 11:59pm**

If it is helpful, the original data may be found at the following links:

- [https://data.cityofchicago.org/Ethics/Lobbyist-Data-Lobbyists/tq3e-t5yq/about\\_data](https://data.cityofchicago.org/Ethics/Lobbyist-Data-Lobbyists/tq3e-t5yq/about_data)
- [https://data.cityofchicago.org/Ethics/Lobbyist-Data-Clients/g8p5-y4m5/about\\_data](https://data.cityofchicago.org/Ethics/Lobbyist-Data-Clients/g8p5-y4m5/about_data)
- [https://data.cityofchicago.org/Ethics/Lobbyist-Data-Employers/dmeh-2zra/about\\_data](https://data.cityofchicago.org/Ethics/Lobbyist-Data-Employers/dmeh-2zra/about_data)
- [https://data.cityofchicago.org/Ethics/Lobbyist-Data-Compensation/dw2f-w78u/about\\_data](https://data.cityofchicago.org/Ethics/Lobbyist-Data-Compensation/dw2f-w78u/about_data)

## **Part 1 – Data Access Tier**

In the Python file “datatier.py”, complete the three functions as defined by the header comments. Feel free to reuse code from previous assignments and lectures. You must implement the functions as defined. Do not change function names, do not change the parameters or return values, do not add functions, do not use global variables, and do not use any other imports.

```
#
# datatier.py
#
# Executes SQL queries against the given database.
#
# Original author: Prof. Joe Hummel, Ellen Kidane
#
import sqlite3

#####
#
# select_one_row:
#
# Given a database connection and a SQL Select query,
# executes this query against the database and returns
# the first row retrieved by the query (or the empty
# tuple () if no data was retrieved). The query can
# be parameterized, in which case pass the values as
# a list via parameters; this parameter is optional.
#
# Returns: first row retrieved by the given query, or
```



CS 341, Fall 2024  
Project 2 – Chicago Lobbyist Database App  
Part 1 Due: Monday 10/7 at 11:59pm  
Part 2 Due: Friday 10/11 at 11:59pm  
Part 3 Due: Wednesday 10/16 at 11:59pm

```
#          () if no data was retrieved. If an error
#          occurs, a msg is output and None is returned.
#
def select_one_row(dbConn, sql, parameters = None):
    pass

#####
#
# select_n_rows:
#
# Given a database connection and a SQL Select query,
# executes this query against the database and returns
# a list of rows retrieved by the query. If the query
# retrieves no data, the empty list [] is returned.
# The query can be parameterized, in which case pass
# the values as a list via parameters; this parameter
# is optional.
#
# Returns: a list of 0 or more rows retrieved by the
#          given query; if an error occurs a msg is
#          output and None is returned.
#
def select_n_rows(dbConn, sql, parameters = None):
    pass

#####
#
# perform_action:
#
# Given a database connection and a SQL action query,
# executes this query and returns the # of rows
# modified; a return value of 0 means no rows were
# updated. Action queries are typically "insert",
# "update", "delete". The query can be parameterized,
# in which case pass the values as a list via
# parameters; this parameter is optional.
#
# Returns: the # of rows modified by the query; if an
#          error occurs a msg is output and -1 is
#          returned. Note that a return value of 0 is
```



CS 341, Fall 2024  
Project 2 – Chicago Lobbyist Database App  
Part 1 Due: Monday 10/7 at 11:59pm  
Part 2 Due: Friday 10/11 at 11:59pm  
Part 3 Due: Wednesday 10/16 at 11:59pm

```
#         not considered an error --- it means the
#         query did not change the database (e.g.
#         because the where condition was false?).
#
def perform_action(dbConn, sql, parameters = None):
    pass
```

## Part 2 – Object Mapping Tier

In the Python file “objecttier.py”, implement the following classes and functions as defined by the header comments. You must implement the classes and functions as defined below. You cannot use tools to generate the code for you. Do not change the class names, property names, or function names. Do not change the parameters or the return values. Do not add functions. Do not use global variables or other imports. All computations must be done using SQL – you cannot simply read in the data and do the searching/sorting/computing yourself. All SQL must be executed by the functions provided in the data access tier.

```
#
# objecttier
#
# Builds Lobbyist-related objects from data retrieved through
# the data tier.
#
# Original author: Ellen Kidane
#
import datatier

#####
#
# Lobbyist:
#
# Constructor(...)
# Properties:
#   Lobbyist_ID: int
#   First_Name: string
#   Last_Name: string
#   Phone: string
#
class Lobbyist:
    pass
```



CS 341, Fall 2024  
Project 2 – Chicago Lobbyist Database App  
Part 1 Due: Monday 10/7 at 11:59pm  
Part 2 Due: Friday 10/11 at 11:59pm  
Part 3 Due: Wednesday 10/16 at 11:59pm

```
#####  
#  
# LobbyistDetails:  
#  
# Constructor(...)  
# Properties:  
#   Lobbyist_ID: int  
#   Salutation: string  
#   First_Name: string  
#   Middle_Initial: string  
#   Last_Name: string  
#   Suffix: string  
#   Address_1: string  
#   Address_2: string  
#   City: string  
#   State_Initial: string  
#   Zip_Code: string  
#   Country: string  
#   Email: string  
#   Phone: string  
#   Fax: string  
#   Years_Registered: list of years  
#   Employers: list of employer names  
#   Total_Compensation: float  
#  
class LobbyistDetails:  
    pass  
  
#####  
#  
# LobbyistClients:  
#  
# Constructor(...)  
# Properties:  
#   Lobbyist_ID: int  
#   First_Name: string  
#   Last_Name: string  
#   Phone: string  
#   Total_Compensation: float  
#   Clients: list of clients  
#
```



CS 341, Fall 2024  
Project 2 – Chicago Lobbyist Database App  
Part 1 Due: Monday 10/7 at 11:59pm  
Part 2 Due: Friday 10/11 at 11:59pm  
Part 3 Due: Wednesday 10/16 at 11:59pm

```
class LobbyistClients:
    pass

#####
#
# num_lobbyists:
#
# Returns: number of lobbyists in the database
#         If an error occurs, the function returns -1
#
def num_lobbyists(dbConn):
    pass

#####
#
# num_employers:
#
# Returns: number of employers in the database
#         If an error occurs, the function returns -1
#
def num_employers(dbConn):
    pass

#####
#
# num_clients:
#
# Returns: number of clients in the database
#         If an error occurs, the function returns -1
#
def num_clients(dbConn):
    pass

#####
#
# get_lobbyists:
#
# gets and returns all lobbyists whose first or last name are "like"
# the pattern. Patterns are based on SQL, which allow the _ and %
# wildcards.
#
# Returns: list of lobbyists in ascending order by ID;
```



CS 341, Fall 2024  
Project 2 – Chicago Lobbyist Database App  
Part 1 Due: Monday 10/7 at 11:59pm  
Part 2 Due: Friday 10/11 at 11:59pm  
Part 3 Due: Wednesday 10/16 at 11:59pm

```
#          an empty list means the query did not retrieve
#          any data (or an internal error occurred, in
#          which case an error msg is already output).
#
def get_lobbyists(dbConn, pattern):
    pass

#####
#
# get_lobbyist_details:
#
# gets and returns details about the given lobbyist
# the lobbyist id is passed as a parameter
#
# Returns: if the search was successful, a LobbyistDetails object
#          is returned. If the search did not find a matching
#          lobbyist, None is returned; note that None is also
#          returned if an internal error occurred (in which
#          case an error msg is already output).
#
def get_lobbyist_details(dbConn, lobbyist_id):
    pass

#####
#
# get_top_N_lobbyists:
#
# gets and returns the top N lobbyists based on their total
# compensation, given a particular year
#
# Returns: returns a list of 0 or more LobbyistClients objects;
#          the list could be empty if the year is invalid.
#          An empty list is also returned if an internal error
#          occurs (in which case an error msg is already output).
#
def get_top_N_lobbyists(dbConn, N, year):
    pass

#####
```



CS 341, Fall 2024  
Project 2 – Chicago Lobbyist Database App  
Part 1 Due: Monday 10/7 at 11:59pm  
Part 2 Due: Friday 10/11 at 11:59pm  
Part 3 Due: Wednesday 10/16 at 11:59pm

```
#
# add_lobbyist_year:
#
# Inserts the given year into the database for the given lobbyist.
# It is considered an error if the lobbyist does not exist (see
below),
# and the year is not inserted.
#
# Returns: 1 if the year was successfully added,
#         0 if not (e.g. if the lobbyist does not exist, or if
#         an internal error occurred).
#
def add_lobbyist_year(dbConn, lobbyist_id, year):
    pass

#####
#
# set_salutation:
#
# Sets the salutation for the given lobbyist.
# If the lobbyist already has a salutation, it will be replaced by
# this new value. Passing a salutation of "" effectively
# deletes the existing salutation. It is considered an error
# if the lobbyist does not exist (see below), and the salutation
# is not set.
#
# Returns: 1 if the salutation was successfully set,
#         0 if not (e.g. if the lobbyist does not exist, or if
#         an internal error occurred).
#
def set_salutation(dbConn, lobbyist_id, salutation):
    pass
```





**CS 341, Fall 2024**  
**Project 2 – Chicago Lobbyist Database App**  
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**Part 2 Due: Friday 10/11 at 11:59pm**  
**Part 3 Due: Wednesday 10/16 at 11:59pm**

## **Part 3 – Presentation Tier**

In the Python file “main.py”, write a Python program to implement 5 commands:

1. Look up lobbyists by their first or last name,
2. Look up details on a particular lobbyist by searching their ID,
3. Find the top N lobbyists by total compensation in a given year,
4. Insert a new registration year for a lobbyist,
5. Set the salutation of a lobbyist.

Each of these commands must be a separate function in your Python program.

The presentation tier cannot execute SQL directly. All data must be retrieved by calling the object mapping tier as defined in Part 2 above. Do not use global variables. Do not import any modules other than `sqlite3` or `objecttier`.

### Beginning of Program Execution

At the beginning of the program execution, some statistics about the database should be displayed.

If the user enters something other than 1-5 or x for the command, display an error message and prompt them to enter a command again.

It should look like this:

```
** Welcome to the Chicago Lobbyist Database Application **
```

```
General Statistics:
```

```
Number of Lobbyists: 2,509
```

```
Number of Employers: 2,348
```

```
Number of Clients: 8,044
```

```
Please enter a command (1-5, x to exit): help
```

```
**Error, unknown command, try again...
```

```
Please enter a command (1-5, x to exit): 0
```

```
**Error, unknown command, try again...
```

```
Please enter a command (1-5, x to exit): 11
```

```
**Error, unknown command, try again...
```

```
Please enter a command (1-5, x to exit): x
```



**CS 341, Fall 2024**  
**Project 2 – Chicago Lobbyist Database App**  
**Part 1 Due: Monday 10/7 at 11:59pm**  
**Part 2 Due: Friday 10/11 at 11:59pm**  
**Part 3 Due: Wednesday 10/16 at 11:59pm**

Command 1

Given the user input of a name, find and output basic information for all lobbyists that match that name. Either their first name or last name can match, and the user can enter patterns using the SQL wildcards `_` and `%`. Order the results by the ID of the lobbyists. If more than 100 lobbyists are found, do not display them but rather, let the user know to narrow their search.

Please enter a command (1-5, x to exit): 1

Enter lobbyist name (first or last, wildcards `_` and `%` supported):  
william\_

Number of lobbyists found: 15

4357 : SANDOR WILLIAMS Phone: (312) 394-5569  
5701 : PAUL WILLIAMS Phone: (773) 298-5050  
6581 : JERRAE WILLIAMS Phone: (312) 762-9037  
15901 : VINCENT WILLIAMS Phone: (312) 287-5456  
19343 : MATTHEW WILLIAMS Phone: (847) 937-0424  
19563 : JAYE WILLIAMS Phone: (312) 762-7470  
20822 : DONALD WILLIAMS Phone: (630) 649-4508  
25388 : GREGORY WILLIAMS Phone: (212) 528-1051  
25444 : SEAN WILLIAMS Phone: (202) 626-4007  
25465 : ZACHARY WILLIAMS Phone: (413) 297-1559  
26882 : TERRI WILLIAMS Phone: (202) 442-2900  
26904 : LAURA WILLIAMS Phone: (773) 805-7148  
27401 : HOLLIS WILLIAMS Phone: (708) 490-9964  
28783 : KHADIJAH WILLIAMS Phone: (617) 599-7016  
29021 : SEAN WILLIAMS Phone: (202) 626-4000

Please enter a command (1-5, x to exit): 1

Enter lobbyist name (first or last, wildcards `_` and `%` supported):  
william%

Number of lobbyists found: 41

3815 : WILLIAM CARNEY Phone: (312) 379-3700  
3848 : WILLIAM GAINER Phone: (312) 320-7222  
3989 : WILLIAM GRIFFIN Phone: (312) 222-1500  
4064 : WILLIAM FILAN Phone: (312) 420-6813  
4076 : WILLIAM DICKETT Phone: (312) 853-2214



CS 341, Fall 2024  
Project 2 – Chicago Lobbyist Database App  
Part 1 Due: Monday 10/7 at 11:59pm  
Part 2 Due: Friday 10/11 at 11:59pm  
Part 3 Due: Wednesday 10/16 at 11:59pm

4083 : WILLIAM LUKING Phone: (312) 245-0940  
4110 : WILLIAM THOMPSON Phone: (901) 579-4393  
4141 : WILLIAM KNAPP Phone: (512) 428-6233  
4250 : WILLIAM HOFHERR Phone: (312) 641-3611  
4302 : WILLIAM MACK Phone: (312) 706-4266  
4348 : WILLIAM BANKS Phone: (312) 345-5700  
4357 : SANDOR WILLIAMS Phone: (312) 394-5569  
4370 : WILLIAM ZIZIC Phone: (312) 665-2354  
4624 : WILLIAM SMITH Phone: (312) 281-0994  
5701 : PAUL WILLIAMS Phone: (773) 298-5050  
6581 : JERRAE WILLIAMS Phone: (312) 762-9037  
8043 : WILLIAM DALEY Phone: (312) 706-4058  
8161 : WILLIAM SINGER Phone: (312) 862-2142  
10921 : WILLIAM O'DONAGHUE Phone: (312) 726-8797  
15601 : WILLIAM GLUNZ Phone: (847) 233-4640  
15901 : VINCENT WILLIAMS Phone: (312) 287-5456  
16261 : WILLIAM MITCHELL Phone: (847) 330-6056  
17101 : WILLIAM CARSTANJEN Phone: (502) 636-4410  
17301 : WILLIAM BURNS Phone: (415) 662-3254  
19343 : MATTHEW WILLIAMS Phone: (847) 937-0424  
19563 : JAYE WILLIAMS Phone: (312) 762-7470  
20164 : WILLIAM BOEHM Phone: (630) 399-0149  
20822 : DONALD WILLIAMS Phone: (630) 649-4508  
21844 : WILLIAM DALEY Phone: (312) 655-4600  
24310 : WILLIAM VELAZQUEZ Phone: (773) 317-7799  
24764 : WILLIAM KATT Phone: (312) 263-3700  
24865 : WILLIAM BURNS Phone: (415) 389-6800  
25388 : GREGORY WILLIAMS Phone: (212) 528-1051  
25444 : SEAN WILLIAMS Phone: (202) 626-4007  
25465 : ZACHARY WILLIAMS Phone: (413) 297-1559  
26882 : TERRI WILLIAMS Phone: (202) 442-2900  
26904 : LAURA WILLIAMS Phone: (773) 805-7148  
27401 : HOLLIS WILLIAMS Phone: (708) 490-9964  
28783 : KHADIJAH WILLIAMS Phone: (617) 599-7016  
29021 : SEAN WILLIAMS Phone: (202) 626-4000  
29461 : WILLIAM BARNOW Phone: (703) 328-4994

Please enter a command (1-5, x to exit): 1

Enter lobbyist name (first or last, wildcards \_ and % supported):  
emily



CS 341, Fall 2024  
Project 2 – Chicago Lobbyist Database App  
Part 1 Due: Monday 10/7 at 11:59pm  
Part 2 Due: Friday 10/11 at 11:59pm  
Part 3 Due: Wednesday 10/16 at 11:59pm

Number of lobbyists found: 7

6525 : EMILY RAMSEY Phone: (312) 786-1700  
21901 : EMILY SULLIVAN Phone: (978) 421-9655  
24815 : EMILY ROBINSON Phone: (773) 269-4043  
24871 : EMILY FIORE Phone: (312) 634-5752  
25315 : EMILY MADAVO Phone: (847) 373-9988  
25744 : EMILY RAMSEY Phone: (312) 213-9630  
26903 : EMILY REUSSWIG Phone: (312) 863-6260

Please enter a command (1-5, x to exit): 1

Enter lobbyist name (first or last, wildcards \_ and % supported):  
%a%

Number of lobbyists found: 2081

There are too many lobbyists to display, please narrow your search and try again...

Please enter a command (1-5, x to exit): 1

Enter lobbyist name (first or last, wildcards \_ and % supported):  
hellothere

Number of lobbyists found: 0

Please enter a command (1-5, x to exit): 1

Enter lobbyist name (first or last, wildcards \_ and % supported):  
Bob

Number of lobbyists found: 3

20345 : BOB VEZINA Phone: (847) 619-5354  
24630 : BOB PALMER Phone: (312) 939-6075  
24825 : BOB ENKEMA Phone: (773) 484-4027



**CS 341, Fall 2024**  
**Project 2 – Chicago Lobbyist Database App**  
**Part 1 Due: Monday 10/7 at 11:59pm**  
**Part 2 Due: Friday 10/11 at 11:59pm**  
**Part 3 Due: Wednesday 10/16 at 11:59pm**

Command 2

Given a lobbyist ID, find and output detailed information about the lobbyist. This includes a list of years that the lobbyist has been registered, which should be in ascending order. It also includes a list of employers that they have had, which should show only the distinct employer names and be in ascending order by employer name. The total compensation shown should be calculated using all the years for which there is information in the database.

If the lobbyist ID does not exist in the database, let the user know.

Please enter a command (1-5, x to exit): 2

Enter Lobbyist ID: 555555555

No lobbyist with that ID was found.

Please enter a command (1-5, x to exit): 2

Enter Lobbyist ID: 28783

28783 :

Full Name: MS. KHADIJAH WILLIAMS

Address: 1442 FAIRMONT ST. NW APT B , WASHINGTON , DC 20009

United States

Email: Kwilliams@whywelift.org

Phone: (617) 599-7016

Fax:

Years Registered: 2023,

Employers: LIFT, INC (LIFT-CHICAGO),

Total Compensation: \$0.00

Please enter a command (1-5, x to exit): 2

Enter Lobbyist ID: 4007

4007 :

Full Name: JOHN J KELLY, JR.

Address: 670 N. CLARK ST., 4TH FLR , CHICAGO , IL 60654 United States

Email: jkelly@allcirco.com

Phone: (312) 750-9262

Fax: (312) 277-3939



CS 341, Fall 2024  
Project 2 – Chicago Lobbyist Database App  
Part 1 Due: Monday 10/7 at 11:59pm  
Part 2 Due: Friday 10/11 at 11:59pm  
Part 3 Due: Wednesday 10/16 at 11:59pm

Years Registered: 2014, 2015, 2016, 2017, 2018, 2019, 2020,  
2021, 2022, 2023, 2024,  
Employers: ALL-CIRCO, INC.,  
Total Compensation: \$14,814,084.00

Please enter a command (1-5, x to exit): 2

Enter Lobbyist ID: 4273

4273 :

Full Name: MR. JACK L PARRINO ESQ  
Address: 55 E. MONROE ST., 37TH FLR , CHICAGO , IL 60603  
United States  
Email: jparrino@thompsoncoburn.com  
Phone: (312) 346-7500  
Fax: (312) 580-2201  
Years Registered: 2014, 2015, 2016, 2017, 2018, 2019, 2020,  
2021, 2022, 2023, 2024,  
Employers: THOMPSON COBURN LLP,  
Total Compensation: \$74,848.50

Please enter a command (1-5, x to exit): 2

Enter Lobbyist ID: 14121

14121 :

Full Name: MS. O. KATE TRAGESSER  
Address: 111 E. WACKIER DRIVE SUITE 2800 , CHICAGO , IL 60601  
United States  
Email: ktragesser@taftlaw.com  
Phone: (312) 840-4326  
Fax: (312) 966-8575  
Years Registered: 2016, 2017, 2018, 2019, 2020, 2021, 2022,  
2023, 2024,  
Employers: TAFT STETTINIUS & HOLLISTER LLP, TAFT, STETTINIUS &  
HOLLISTER LLP, VOLANT PARTNERS, LLC,  
Total Compensation: \$9,673.50



**CS 341, Fall 2024**  
**Project 2 – Chicago Lobbyist Database App**  
**Part 1 Due: Monday 10/7 at 11:59pm**  
**Part 2 Due: Friday 10/11 at 11:59pm**  
**Part 3 Due: Wednesday 10/16 at 11:59pm**

Command 3

Given a year, output the top N lobbyists based on their total compensation for that year. You should check the value of N to see if it is valid, but you do not need to validate the year (it would simply show nothing). The results should be ordered by the total compensation. Part of the output is the list of clients for a lobbyist in the year chosen, which should be ordered by the client name. Note that there are quite a few clients with different IDs, but the same name. The output should show the names for distinct client IDs, but not distinct client names.

Please enter a command (1-5, x to exit): 3

Enter the value of N: -1

Please enter a positive value for N...

Please enter a command (1-5, x to exit): 3

Enter the value of N: 0

Please enter a positive value for N...

Please enter a command (1-5, x to exit): 3

Enter the value of N: 3

Enter the year: 2023

1 . PATRICK CAREY

Phone: (312) 450-4161

Total Compensation: \$1,785,500.00

Clients: ALLIED UNIVERSAL, AMAZON.COM SERVICES LLC, ASIAN HUMAN SERVICES, AUTOMOTUS, CHICAGO TRANSIT AUTHORITY, CLEANING COALITION OF AMERICA, COMCAST CABLE COMMUNICATIONS, LLC, CRUISE, DIAGEO NA, GOPUFF, GRANT PARK ORCHESTRAL ASSOCIATION, HUDSON GROUP, LYFT, MCGUIREWOODS CONSULTING, RUSH UNIVERSITY SYSTEM FOR HEALTH, SLALOM, LLC, SSP AMERICA, INC., STARBUCKS CORPORATION, ZILLOW GROUP, INC.,

2 . JOHN DUNN

Phone: (312) 296-0914

Total Compensation: \$1,436,500.00

Clients: AMAZON, ASIAN HUMAN SERVICES, CATHOLIC CHARITIES, CITYBASE LLC, COMCAST CORP., CRUISE, DIAGEO NA, GANNETT FLEMING, GOPUFF, GRANT PARK ORCHESTRAL ASSOCIATION, HERTZ GLOBAL, HUDSON GROUP, LYFT, MIDWEST GAMING AND ENTERTAINMENT LLC, MOTOROLA SOLUTIONS, SALESFORCE, SSP AMERICA, INC., STARBUCKS CORPORATION,



CS 341, Fall 2024  
Project 2 – Chicago Lobbyist Database App  
Part 1 Due: Monday 10/7 at 11:59pm  
Part 2 Due: Friday 10/11 at 11:59pm  
Part 3 Due: Wednesday 10/16 at 11:59pm

3 . JOHN KELLY, JR.

Phone: (312) 750-9262

Total Compensation: \$1,356,000.00

Clients: 3305 LAWDALE DEV LLC, ADM, BALLY'S CORPORATION, BMG MONEY, INC., BRE 312 OWNER LLC AND BRE RIVER NORTH POINT OWNER LLC, CVS HEALTH, KATTEN MUCHIN ROSENMAN LLP, NORESKO LLC, ORACLE INC, SUNRISE TRANSPORTATION,

Please enter a command (1-5, x to exit): 3

Enter the value of N: 10

Enter the year: 2014

1 . JOHN KELLY, JR.

Phone: (312) 750-9262

Total Compensation: \$1,298,000.00

Clients: A SAFE HAVEN, ALLIEDBARTON SECURITY SERVICES LLC, ATHLETICO PHYSICAL THERAPY, CHICAGO AUTOMOBILE TRADE ASSOCIATION, CITY ESCAPE GARDEN CENTER AND DESIGN STUDIO, CVS CAREMARK CORP, DEVRY INC., ELECTION SYSTEMS & SOFTWARE, LLC, ELECTION SYSTEMS & SOFTWARE, LLC, FAMILY GUIDANCE CENTERS, INC, KINDER MORGAN ENERGY PARTNERS, KNIGHT ENGINEERS AND ARCHITECTS, INC., MONTERREY SECURITY CONSULTANTS, INC., NORESKO LLC, SEGWAY EXPERIENCE OF CHICAGO, SMITH PARTNERS, LLC, TITAN OUTDOOR LLC, VAN WAGNER CHICAGO, LLC, WIRTZ BEVERAGE,

2 . COURTNEY NOTTAGE

Phone: (312) 704-3812

Total Compensation: \$1,153,502.00

Clients: ACADEMY FOR URBAN SCHOOL LEADERSHIP, AMERICAN BEVERAGE ASSOCIATION, B. GREGORY TRAPANI, CITIBANK, N.A., COLUMBIA COLLEGE CHICAGO, DELAWARE NORTH COMPANIES, DELL, DOMINION VOTING SYSTEMS, INC., FLETCHER JONES MANAGEMENT GROUP, GROWTH ENERGY, HILTON WORLDWIDE, READ PROPERTY GROUP, SECURITIES INDUSTRY AND FINANCIAL MARKETS ASSOCIATION, SMG, TED WYNN, TOTAL OUTDOOR, UBER, UNITED PARCEL SERVICE, UNITED TECHNOLOGIES CORPORATION, UTILITY SERVICE PARTNERS, INC., WRIGLEY ROOFTOPS,

3 . DAVID DRING

Phone: (312) 704-3297

Total Compensation: \$1,153,502.00

Clients: ACADEMY FOR URBAN SCHOOL LEADERSHIP, AMERICAN BEVERAGE ASSOCIATION, B. GREGORY TRAPANI, CITIBANK, N.A., COLUMBIA COLLEGE CHICAGO, DELAWARE NORTH COMPANIES, DELL, DOMINION VOTING SYSTEMS,





**CS 341, Fall 2024**  
**Project 2 – Chicago Lobbyist Database App**  
**Part 1 Due: Monday 10/7 at 11:59pm**  
**Part 2 Due: Friday 10/11 at 11:59pm**  
**Part 3 Due: Wednesday 10/16 at 11:59pm**

INC., FLETCHER JONES MANAGEMENT GROUP, GROWTH ENERGY, HILTON WORLDWIDE, READ PROPERTY GROUP, SECURITIES INDUSTRY AND FINANCIAL MARKETS ASSOCIATION, SMG, TED WYNN, TOTAL OUTDOOR, UBER, UNITED PARCEL SERVICE, UNITED TECHNOLOGIES CORPORATION, UTILITY SERVICE PARTNERS, INC., WRIGLEY ROOFTOPS,

**4 . MICHAEL KASPER**

Phone: (314) 704-3292

Total Compensation: \$1,099,502.00

Clients: ACADEMY FOR URBAN SCHOOL LEADERSHIP, AMERICAN BEVERAGE ASSOCIATION, B. GREGORY TRAPANI, CITIBANK, N.A., COLUMBIA COLLEGE CHICAGO, DELAWARE NORTH COMPANIES, DELL, DOMINION VOTING SYSTEMS, INC., FLETCHER JONES MANAGEMENT GROUP, GROWTH ENERGY, HILTON WORLDWIDE, READ PROPERTY GROUP, SECURITIES INDUSTRY AND FINANCIAL MARKETS ASSOCIATION, SMG, TED WYNN, TOTAL OUTDOOR, UBER, UNITED PARCEL SERVICE, UNITED TECHNOLOGIES CORPORATION, UTILITY SERVICE PARTNERS, INC., WRIGLEY ROOFTOPS,

**5 . JOHN DUNN**

Phone: (312) 296-0914

Total Compensation: \$791,250.00

Clients: BOWMAN CONSULTING, HUDSON GROUP, LYFT, PNC BANK, SAS INSTITUTE INC, SMARTE CARTE, INC., SSP AMERICA, INC., VERIZON WIRELESS, WRIGLEYVILLE ROOFTOP ASSOCIATION,

**6 . DONNA PUGH**

Phone: (312) 832-4596

Total Compensation: \$552,846.00

Clients: 230 WEST MONROE ASSOCIATES PROPERTY LLC, AGC WEST TOWN CENTER OWNER LLC, ALDI, INC., AN ILLINOIS CORPORATION, AMERICAN GIRL INC, CHICAGO PROFESSIONAL SPORTS LIMITED PARTNERSHIP (CHICAGO BULLS), GENERAL GROWTH PROPERTIES, JMB FINANCIAL ADVISORS, LLC, MMJ AMERICA HOLDING COMPANY LLC, NORTHWOOD ACQUISITION LLC, PATTISON GROUP INC, PRESENCE HEALTH SYSTEM, UNITED CENTER JOINT VENTURE, WATER TOWER PLACE LLC, WENDY'S COMPANY, WENDY'S OLD FASHIONED HAMBURGERS,

**7 . LANGDON NEAL**

Phone: (312) 641-7144

Total Compensation: \$377,379.00

Clients: 571 WEST POLK, LLC, ANTHEUS CAPITAL, LLC, BAKER DEVELOPMENT CORP., BOSTON MARKET CORPORATION, CHEZ, LLC, CHICAGO BOARD OF EDUCATION, CHICAGO NEIGHBORHOOD INITIATIVES, CHICAGO SOUTHWEST DEVELOPMENT CORPORATION, CRESCENT HEIGHTS, GLENSTAR ASSET MANAGEMENT, LLC, HARBOR GROUP MANAGEMENT CO, HOLSTEN REAL ESTATE DEVELOPMENT & MANAGEMENT CORP, INTERSTATE/JCDECAUX, LLC,



CS 341, Fall 2024  
Project 2 – Chicago Lobbyist Database App  
Part 1 Due: Monday 10/7 at 11:59pm  
Part 2 Due: Friday 10/11 at 11:59pm  
Part 3 Due: Wednesday 10/16 at 11:59pm

JEAN CHOI & PETER ZALDIVAR, KOZY CYCLERY, MACADAM & COMPANY, LTD,  
METROPOLITAN PIER & EXPO AUTHORITY, NORTH SHORE SPANISH BAPTIST  
CHURCH, NORTHWESTERN CAPITAL INVESTMENT PARTNERS, LLC,  
NORTHWESTERN MEMORIAL HOSPITAL, PLANET FITNESS, PROPERTY MARKET  
GROUP, PUBLIC BUILDING COMMISSION OF CHICAGO, REMET CORPORATION,  
RUSH UNIVERSITY MEDICAL CENTER, STEANS FAMILY FOUNDATION,  
STERLING BAY COMPANIES, SUN FINANCIAL, TRIBUNE COMPANY, ULICH  
CHILDREN'S ADVANTAGE NETWORK, VESTIAN GROUP, INC, WAL-MART  
STORES, INC.,

8 . JOHN BOROVICKA

Phone: (312) 759-7505

Total Compensation: \$342,875.00

Clients: BLUEBIRD NETWORK, LLC, ELECTRONIC KNOWLEDGE  
INTERCHANGE, HOLCIM (US) INC., LMG2, LLC, MEDMAR, INC.,  
NORTHWESTERN UNIVERSITY, OMICRON TECHNOLOGIES, INC, SSP AMERICA,  
INC., XEROX STATE & LOCAL SOLUTIONS, INC.,

9 . WILLIAM SMITH

Phone: (312) 281-0994

Total Compensation: \$293,833.00

Clients: COMMUNITY BANKERS ASSOCIATION OF ILLINOIS, FREEDMAN  
ANSELMO LINBERG LLC, FULTON & OGDEN LLC, ILLINOIS CREDIT UNION  
LEAGUE, JASON LEARNING, NRG ENERGY, INC., PIERCE & ASSOCIATES,  
SYSTEM DEVELOPMENT INTEGRATION LLC, THE PIZZUTI COMPANIES,

10 . EDWARD FELDMAN

Phone: (312) 263-3700

Total Compensation: \$278,409.50

Clients: CHICAGO ACCESS CORP., YELLOW GROUP LLC,

Please enter a command (1-5, x to exit): 3

Enter the value of N: 3

Enter the year: 2025

Please enter a command (1-5, x to exit): 3

Enter the value of N: 25

Enter the year: 1654



**CS 341, Fall 2024**  
**Project 2 – Chicago Lobbyist Database App**  
**Part 1 Due: Monday 10/7 at 11:59pm**  
**Part 2 Due: Friday 10/11 at 11:59pm**  
**Part 3 Due: Wednesday 10/16 at 11:59pm**

Command 4

Register an existing lobbyist for a new year. Allow the user to enter the ID of the lobbyist and the year, and then insert this information into the database.

If the lobbyist does not exist, let the user know.

You can verify that it was added successfully by running command 2 and checking that the new year appears in the list.

Please enter a command (1-5, x to exit): 4

Enter year: 2025

Enter the lobbyist ID: 123456789

No lobbyist with that ID was found.

Please enter a command (1-5, x to exit): 4

Enter year: 2025

Enter the lobbyist ID: 28783

Lobbyist successfully registered.

Please enter a command (1-5, x to exit): 2

Enter Lobbyist ID: 28783

28783 :

Full Name: MS. KHADIJAH WILLIAMS

Address: 1442 FAIRMONT ST. NW APT B , WASHINGTON , DC 20009

United States

Email: Kwilliams@whywelift.org

Phone: (617) 599-7016

Fax:

Years Registered: 2023, 2025,

Employers: LIFT, INC (LIFT-CHICAGO),

Total Compensation: \$0.00



**CS 341, Fall 2024**  
**Project 2 – Chicago Lobbyist Database App**  
**Part 1 Due: Monday 10/7 at 11:59pm**  
**Part 2 Due: Friday 10/11 at 11:59pm**  
**Part 3 Due: Wednesday 10/16 at 11:59pm**

Command 5

Set the salutation for a given lobbyist. If the lobbyist already has a salutation, it will be replaced by this new value. If the lobbyist does not exist, let the user know.

You can verify that the salutation was added successfully by running command 2 and checking that the new salutation appears.

Please enter a command (1-5, x to exit): 5

Enter the lobbyist ID: 832955786234895793845732898  
Enter the salutation: Mr.

No lobbyist with that ID was found.

Please enter a command (1-5, x to exit): 5

Enter the lobbyist ID: 28783  
Enter the salutation: MRS.

Salutation successfully set.

Please enter a command (1-5, x to exit): 2

Enter Lobbyist ID: 28783

28783 :

Full Name: MRS. KHADIJAH WILLIAMS

Address: 1442 FAIRMONT ST. NW APT B , WASHINGTON , DC 20009

United States

Email: Kwilliams@whywelift.org

Phone: (617) 599-7016

Fax:

Years Registered: 2023, 2025,

Employers: LIFT, INC (LIFT-CHICAGO),

Total Compensation: \$0.00



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## Requirements

You must implement the files as directed above. Failure to do so will result in a score of zero for the project.

It is also expected that you use good programming practices, i.e. functions, comments, consistent spacing, etc. In a 3xx class this should be obvious and not require further explanation. But to be clear, if you submit a program with no functions and no comments, you will be significantly penalized --- in fact you can expect a score of 0, even if the program produces the correct results. How many functions? How many comments? You can decide. Make reasonable decisions and you will not be penalized.

## Submission

Login to Gradescope.com and look for the assignment “Project 02 – Part 01”, “Project 02 – Part 02”, and “Project 02 – Part 03”. Submit the respective files to each of those assignments.

**You have unlimited submissions. Keep in mind we grade your last submission unless you select an earlier submission for grading. If you do choose to activate an earlier submission, you must do so before the deadline.**

The score reported on Gradescope is only part of your final score. After the project is due, the TAs will manually review the programs for style and adherence to requirements (0-100%).

**Suggestion:** when you fail a test on Gradescope, we show your output, the correct output, and the difference between the two (as computed by Linux’s diff utility). Please study the output carefully to see where your output differs. If there are lots of differences, or you can’t see the difference, here’s a good tip:

1. Browse to <https://www.diffchecker.com/>
2. Copy your output as given by Gradescope and paste into the left window
3. Copy the correct output as given by Gradescope and paste into the right window
4. Click the “Find Difference” button

You’ll get a visual representation of the differences. Modify your program to produce the required output, and resubmit.

In terms of grading, note that we expect all submissions to compile, run, and pass at least some of the test cases; do not expect partial credit with regards to correctness unless your program compiles and runs.



**CS 341, Fall 2024**  
**Project 2 – Chicago Lobbyist Database App**  
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**Late submissions for this project are allowed.** You may turn in a project up to 3 days (72 hours) late, and will receive the following penalty on your total score:

Submission made **up to 24 hours late**: **10%** deduction

Submission made **24-48 hours late**: **20%** deduction

Submission made **48-72 hours late**: **30%** deduction

No submissions will be accepted after 72 hours.

The late policy applies to each part of the program individually.

## **Academic Integrity**

All work is to be done individually — group work is not allowed.

While we encourage you to talk to your peers and learn from them, this interaction must be superficial with regards to all work submitted for grading. This means you cannot work in teams, you cannot work side-by-side, you cannot submit someone else's work (partial or complete) as your own, etc. The University's policy is available here:

<https://dos.uic.edu/community-standards/>

In particular, note that **you are guilty of academic dishonesty if you extend or receive any kind of unauthorized assistance**. Absolutely no transfer of program code between students is permitted (paper or electronic), and you may not solicit code from family, friends, or online forums (e.g. you cannot download answers from Chegg). Other examples of academic dishonesty include emailing your program to another student, sharing your screen so that another student may copy your work, copying-pasting code from the internet, working together in a group, and allowing a tutor, TA, or another individual to write an answer for you.

Academic dishonesty is unacceptable, and penalties range from a letter grade drop to expulsion from the university; cases are handled via the official student conduct process described at the link above.