

# CSCI1462

## Lab03 Part2

Due: 10 Oct 2025 by 11:59 pm

Name: \_\_\_\_\_

Total Points:50

## 1 Instructions

- This lab assignment is the second part of a two-part lab. The first part is to be completed using JupyterLab, while the second part must be done by hand.
- This lab assignment is due on the date and time specified above. Consult the syllabus for late penalty.
- This assignment is restricted to individual effort. As per our syllabus, the use of AI is prohibited. You may not receive help from any other person except the instructor, the TA, or the AARC (help from the TA and AARC must be well documented!).
- Any resource used (other than the instructor or the course text) must be documented in a separate README.txt file detailing the source and describing exactly what was learned and how that information was used in your assignment. Submissions will be severely penalized if copied in part or whole from any source.
- If you need help, visit your instructor during his posted office hours. If your schedule cannot accommodate any of these times, then email your instructor to schedule a different time.
- Capture images/scanned copies of your solutions for the second part and upload them together with the first part's jupyter lab (.ipynb) file to D2L as **single zipped folder**.

## Basketball Bonanza [30 points]

The table given below, **nba**, shows the 2016-2017 NBA Season data. The **nba** table contains 8 columns. The first few rows are shown below.

player	prefix	position	age	salary	games	minutes	points
Al Horford	BOS	C	30	2.65401e+07	68	2193	952
Amir Johnson	BOS	PF	29	1.2e+07	80	1608	520
Avery Bradley	BOS	SG	26	8.26966e+06	55	1835	894
Demetrius Jackson	BOS	PG	22	1.45e+06	5	17	10
Gerald Green	BOS	SF	31	1.4106e+06	47	538	262
Isaiah Thomas	BOS	PG	27	6.58713e+06	76	2569	2199
Jae Crowder	BOS	SF	26	6.28641e+06	72	2335	999
James Young	BOS	SG	21	1.8252e+06	29	220	68
Jaylen Brown	BOS	SF	20	4.743e+06	78	1341	515
Jonas Jerebko	BOS	PF	29	5e+06	78	1232	299

- **player:** a string, the name of nba player
- **prefix:** a string, the name of nba team
- **position:** a string, position abbreviation for the game
- **age:** an int, age of the player
- **salary:** an int, salary of the player
- **games:** an int, number of games played
- **minutes:** an int, total minutes the player played in all games
- **points:** an int, total points the player scored in all games

Assume that numpy and pandas modules are already imported as **np** and **pd** respectively.

Write **python expressions** to answer the following questions.

1. (5 points) The age of the oldest NBA player.
2. (5 points) The three-letter prefix of the team that had highest paid player with the position power forward (PF) in the NBA. You may assume there is only one such player.

3. (10 points) The number of teams that have fewer than 5 players older than 30.
4. (10 points) The number of positions for which the total points scored by CLE players in that position was higher than the total points scored by BOS players in that position.

## Numpy [20 points]

A numpy array of integers, named **tx** contains the rough population of Texas for every 10 years from 1900 to 2020. It has total 13 items.

```
array([ 3055000, 3922000, 4723000, ... , 20944499, 25241897, 29217653])
```

Write **Python expressions** below to answer each of the following questions.

1. (5 points) What is the population in the year 2000?

- (5 points) The population change from 1930 to 1950. You should only show the change, expressed as number of persons. (Not as a proportion or percentage change)
- (5 points) Find if the population ever increased by less than 1 million in a decade. Note: Your answer should contain python expression which returns True or False. (Do not write True or False directly to the answer)
- (5 points) Find the number of items in `tx` that are atleast twice as large as the population in 1950.