

Data Dunkers



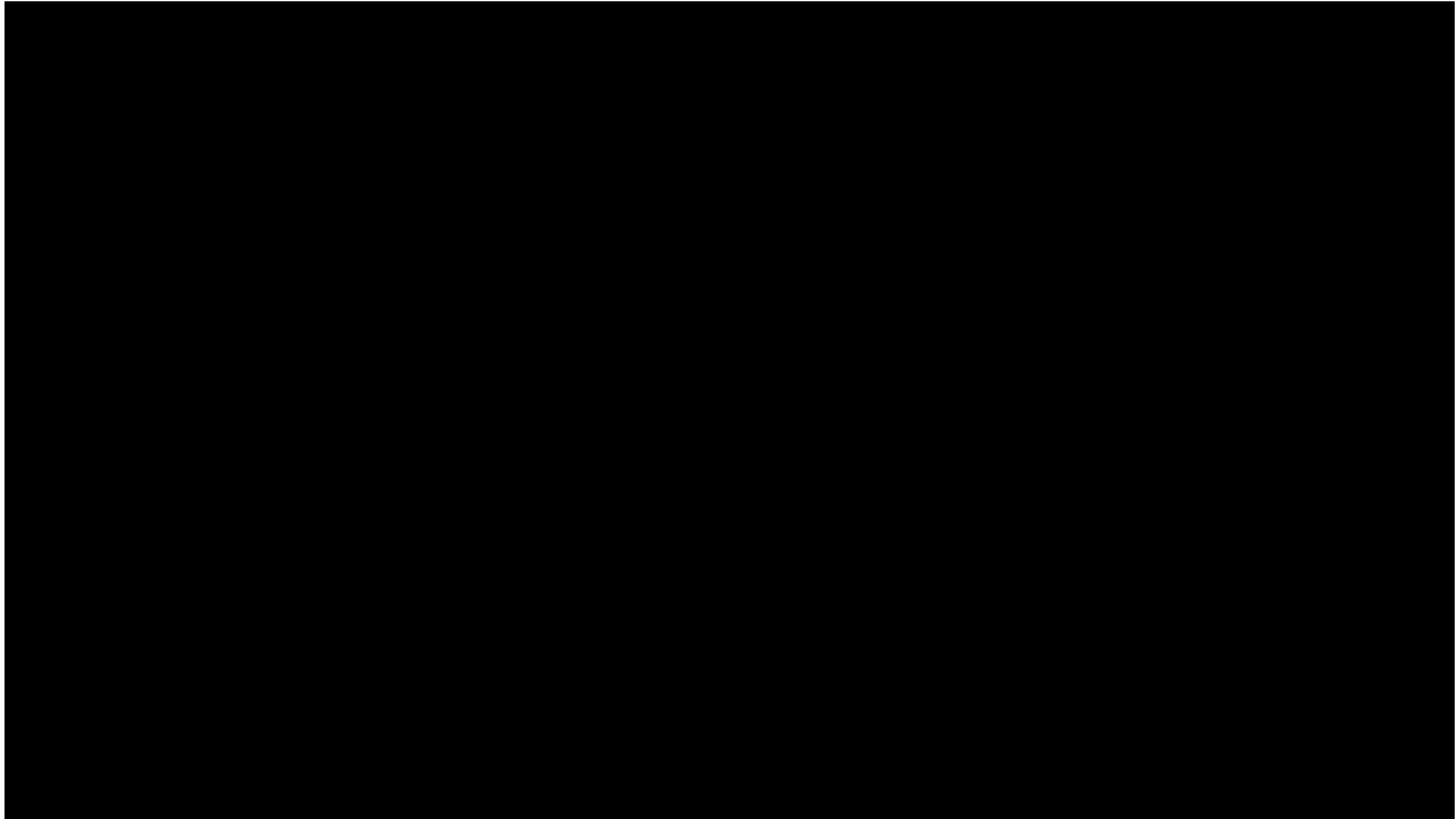
2023-11-08

#DataDunkers

@PS43
@DellTech
@CallystoCanada
@DigitalMomentCa

DELL Technologies





Who are the
Players in this
room?

43!



Live Data Collection

bit.ly/ddbbform



What is the PS43 Foundation?

The PS43 Foundation is a not-for-profit organization that finds unique ways to **make a difference in the lives of children** through education. Through financial literacy, sports, and life skills our goal is to teach children and give them an advantage in society.

The PS43 Foundation is guided by one basic principle: **DREAM BIG.**



Accelerate Innovation with Dell Technologies

Embrace the Future of Learning

ROOTED IN EQUITY



Partnership Dell & PS43

- Leverage basketball and technology as learning tools
- Create new opportunities for students in K12; guide them to be successful and reach their full potential, regardless of their background or personal circumstances



Raptors Update – What happened in Q2?



113

(14 - 18)



106

(18 - 14)

Team	1	2	3	4	T
Toronto Raptors	28	35	24	26	113
New York Knicks	27	26	27	26	106

Lots of stats to consider....

[Next Game](#) [Full Splits](#)

 Raptors 13-18		7:30 PM		 Knicks 18-13								
PPG	APG	3P%	FG%	REB	AST	BLK	STL	PF	TO	PTS		
25.0	6.8	34.9	47.6									
L10	10	37.4	46.4	34.9	81.3	7.9	6.4	0.2	1.0	3.2	2.0	26.0
Road	10	36.7	48.5	26.1	79.2	8.9	7.1	0.7	1.1	3.1	2.9	26.3

Stats [See All](#)

STATS	GP	MIN	FG%	3P%	FT%	REB	AST	BLK	STL	PF	TO	PTS
Regular Season	21	36.1	47.6	34.9	77.2	8.6	6.8	0.4	1.0	3.2	2.4	25.0
Career	421	29.8	48.8	33.0	77.3	6.4	3.3	0.7	0.9	2.7	1.8	16.2

Recent Games [See All](#)

DATE	OPP	RESULT	MIN	FG%	3P%	FT%	REB	AST	BLK	STL	PF	TO	PTS
Mon 12/19	@  76 PHI	L 104-101 OT	48	48.1	37.5	81.8	15	6	0	1	2	5	38
Sun 12/18	vs  GS	L 126-110	37	45.0	60.0	85.7	5	5	0	0	2	1	27
Fri 12/16	vs  BKN	L 119-116	37	46.7	50.0	100.0	7	5	0	1	4	3	17
Wed 12/14	vs  SAC	L 124-123	43	36.8	100.0	66.7	4	6	0	0	4	1	19
Sun 12/11	@  ORL	L 111-99	38	37.5	0.0	77.8	6	7	1	1	4	4	19

Data is everywhere!



Why Data Science?

Why is it important for students to learn more about data science?

- The amount of data in our world has exponentially increased over the past two decades, yet the opportunities to learn about data and acquire data-related skills remain few and far between.
- Data Science can help make more informed decisions, answer questions, and discover new directions to look in
- Data Scientist is a top in-demand occupation

Pascal's Stats



PASCAL SIAKAM

Toronto Raptors • #43 • Power Forward

[FOLLOW](#)

HT/WT	6' 8", 230 lbs
BIRTHDATE	4/2/1994 (28)
COLLEGE	New Mexico St
DRAFT INFO	2016: Rd 1, Pk 27 (TOR)
STATUS	Active



PASCAL SIAKAM
#43
FORWARD
HEIGHT: 2.06
WEIGHT: 104
BORN: 1994-04-02



Pascal Siakam (born April 2, 1994) is a Cameroonian professional basketball player for the Toronto Raptors of the National Basketball Association (NBA). Siakam played college basketball for the New Mexico State Aggies and was named the Western Athletic Conference Player of the Year in 2016. Nicknamed "Spicy P", he was selected by Toronto with the 27th overall pick in the first round of the 2016 NBA Draft. After being assigned to the NBA Development League (now the G League) as a rookie in 2017, he led Toronto's affiliate team to a title and picked up Finals Most Valuable Player honors in the process. Siakam would later help the Raptors claim an NBA Championship in 2019 while winning the league's Most Improved Player Award in the same season, the first player to win both during the same season.



Pascal's Goal –Top 5 in the NBA

Toronto Raptors Stats 2022-23

[More NBA Teams ▾](#)
[2022-23 Regular Season ▾](#)
[All Splits ▾](#)

Team Leaders

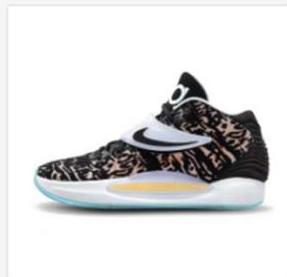
Points	Rebounds	Assists	Steals	Blocks
 24.2	 7.8	 7.2	 1.9	 1.0

Player Stats - All Splits

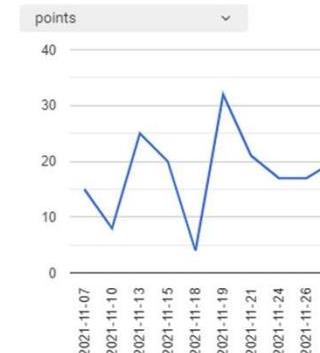
NAME	GP	GS	MIN	PTS	OR	DR	REB	AST	STL	BLK	TO	PF	AST/TO
Pascal Siakam PF	71	71	37.4	24.2	1.8	6.0	7.8	5.8	0.9	0.5	2.4	3.2	2.5
Fred VanVleet SG	69	69	36.7	19.3	0.4	3.6	4.1	7.2	1.8	0.6	2.0	2.8	3.5
Gary Trent Jr. SG	66	44	32.1	17.4	0.5	2.2	2.6	1.6	1.6	0.2	0.8	1.5	1.9
O.G. Anunoby SF	67	67	35.6	16.8	1.4	3.5	5.0	2.0	1.9	0.7	2.0	3.0	1.0

Pascal's Shoes

Nike KD 14



POINTS: 307 AVG POINTS: 19.19
REBOUNDS: 122 AVG REBOUNDS: 7.63
ASSISTS: 58 AVG ASSISTS: 3.63
STEALS: 11 AVG STEALS: 0.69
BLOCKS: 14 AVG BLOCKS: 0.88
MINUTES: 541 AVG MINUTES: 33.81



Nike Zoom KD12



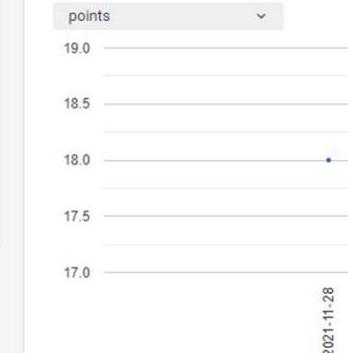
POINTS: 220 AVG POINTS: 27.5
REBOUNDS: 53 AVG REBOUNDS: 6.63
ASSISTS: 26 AVG ASSISTS: 3.25
STEALS: 7 AVG STEALS: 0.88
BLOCKS: 10 AVG BLOCKS: 1.25
MINUTES: 269 AVG MINUTES: 33.63



Nike KD 10



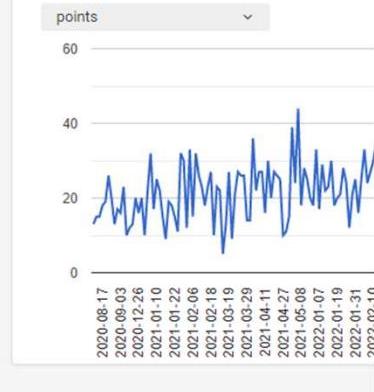
POINTS: 18 AVG POINTS: 18
REBOUNDS: 7 AVG REBOUNDS: 7
ASSISTS: 5 AVG ASSISTS: 5
STEALS: 0 AVG STEALS: 0
BLOCKS: 0 AVG BLOCKS: 0
MINUTES: 37 AVG MINUTES: 37



Nike KD 13



POINTS: 3313 AVG POINTS: 22.39
REBOUNDS: 1187 AVG REBOUNDS: 8.02
ASSISTS: 773 AVG ASSISTS: 5.22
STEALS: 182 AVG STEALS: 1.23
BLOCKS: 88 AVG BLOCKS: 0.59
MINUTES: 5449 AVG MINUTES: 36.82



How Might We...

Program Objectives

#DataDunkers

@PS43

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1. Learn foundational data science through basketball stats and Pascal Siakam (PS43)
2. Engage and Inspire Underserved students, schools & communities
3. Discover and explore career pathways and opportunities in data science



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Program Objectives



Canadian Not
For Profits
with expertise
in Data
Science &
Resource
Development





Data Science and Basketball Resources

Data Science Program Outline



Grade 9 De-streamed Math (MTH1W)

The Program will touch on the following **Overall Expectations of the MTH1W Mathematics (2021) course:**

B1. Development of Numbers and Number Sets

demonstrate an understanding of the development and use of numbers, and make connections between sets of numbers

B3. Number Sense and Operations

apply an understanding of rational numbers, ratios, rates, percentages, and proportions, in various mathematical contexts, and to solve problems

C2. Coding

apply coding skills to represent mathematical concepts and relationships dynamically, and to solve problems, in algebra and across the other strands

C4. Characteristics of Relations

demonstrate an understanding of the characteristics of various representations of linear and non-linear relations, using tools, including coding when appropriate

D1. Collection, Representation, and Analysis of Data

describe the collection and use of data, and represent and analyse data involving one and two variables

D2. Mathematical Modelling

apply the process of mathematical modelling, using data and mathematical concepts from other strands, to represent, analyse, make predictions, and provide insight into real-life situations

If requested, some activities related to Financial Literacy can be included:

F1. Financial Decisions

demonstrate the knowledge and skills needed to make informed financial decisions

Canadian Not For Profits with expertise in Data Science & Resource Development



Basketball and Data Science

Cleaning and Visualizing Data

Let's take a look at the [NBA 2023 Standings from basketball-reference.com](https://www.basketball-reference.com/leagues/NBA_2023_standings.html).

There are a few tables on that page, let's read them using `pandas`.

```
In [1]: ➜ import pandas as pd
page = pd.read_html('https://www.basketball-reference.com/leagues/NBA_2023_standings.html')
for table in page:
    display(table)
```

6	Miami Heat*	(7)	44	38	0.537	14.0	109.5	109.8	-0.13
7	Atlanta Hawks*	(8)	41	41	0.500	17.0	118.4	118.1	0.32
8	Toronto Raptors*	(9)	41	41	0.500	17.0	112.9	111.4	1.59
9	Chicago Bulls*	(10)	40	42	0.488	18.0	113.1	111.8	1.37
10	Indiana Pacers	(11)	35	47	0.427	23.0	116.3	119.5	-2.91
11	Washington Wizards	(12)	35	47	0.427	23.0	113.2	114.4	-1.06
12	Orlando Magic	(13)	34	48	0.415	24.0	111.4	114.0	-2.39
13	Charlotte Hornets	(14)	27	55	0.329	31.0	111.0	117.2	-5.89
14	Detroit Pistons	(15)	17	65	0.207	41.0	110.3	118.5	-7.73

Canadian Not For Profits with expertise in Data Science & Resource Development





PASCAL SIAKAM

Toronto Raptors • #43 • Power Forward

[FOLLOW](#)

HT/WT 6' 8", 230 lbs

BIRTHDATE 4/2/1994 (28)

COLLEGE New Mexico St

DRAFT INFO 2016: Rd 1, Pk 27 (TOR)

STATUS ● Active



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Canadian Not For Profits with expertise in Data Science & Resource Development

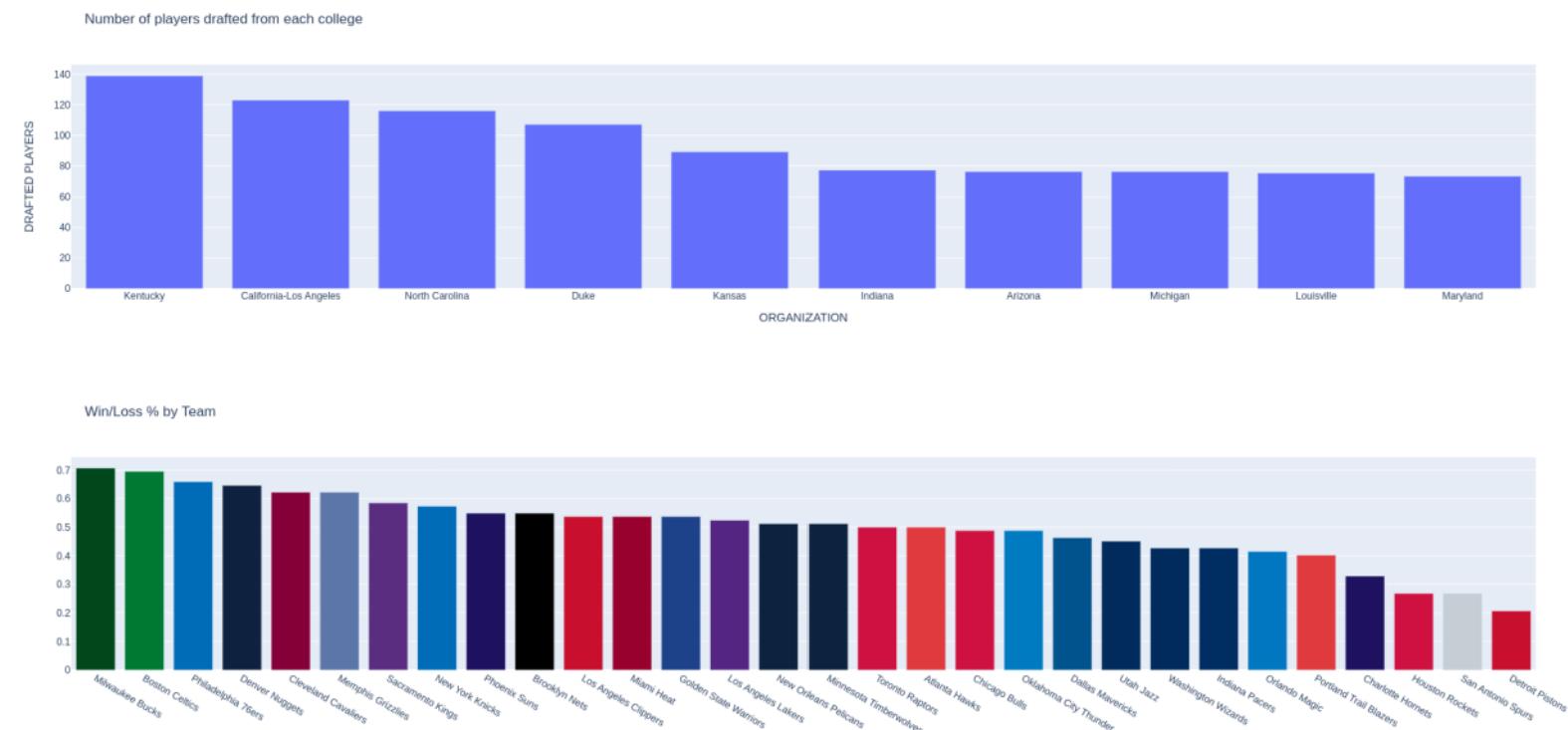


Canadian Not For Profits with expertise in Data Science & Resource Development



Additional Visualizations

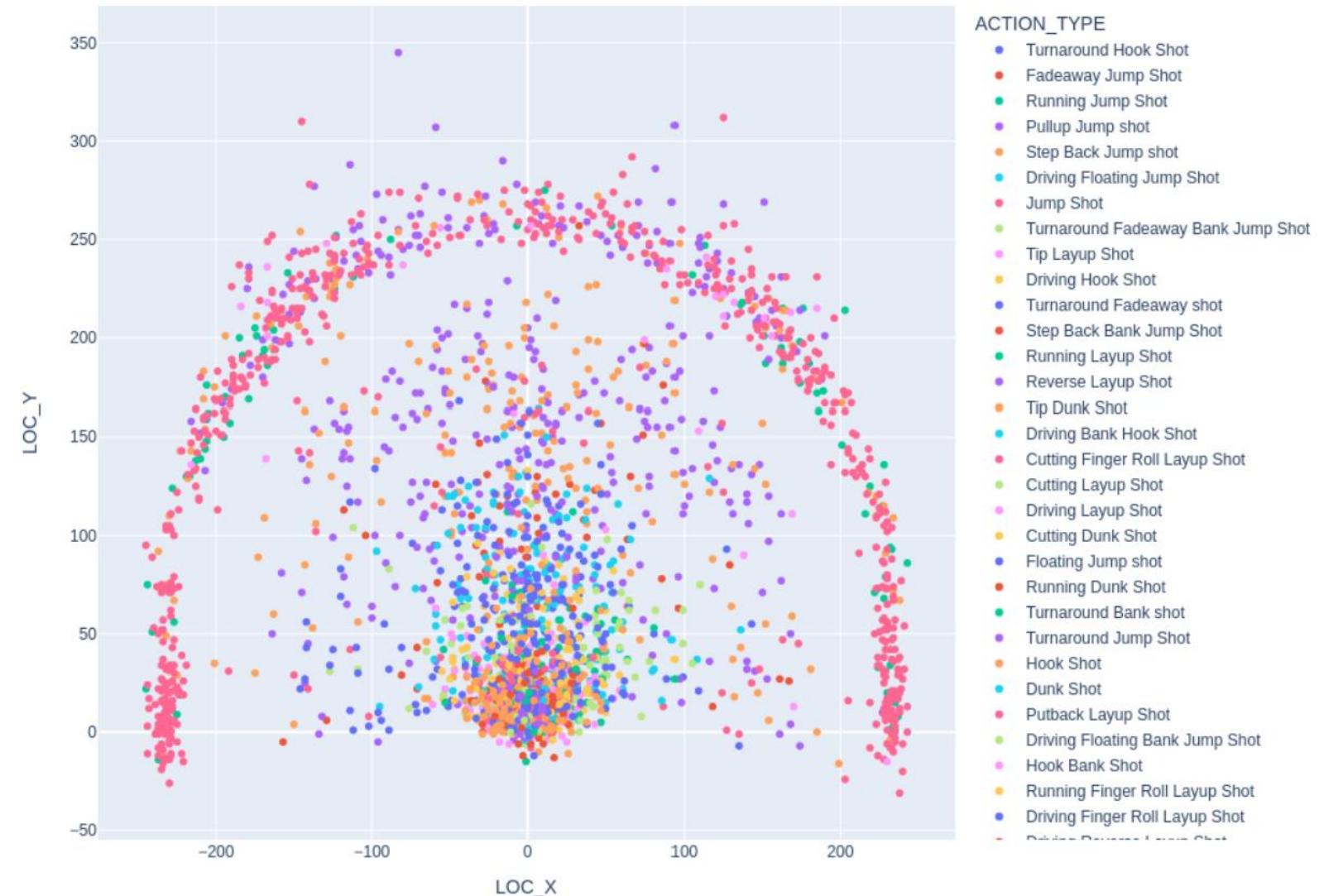
Please see below for some additional visualizations, which can be presented to students to demonstrate possible datasets, areas of exploration, and visualization techniques.



Canadian Not For Profits with expertise in Data Science & Resource Development

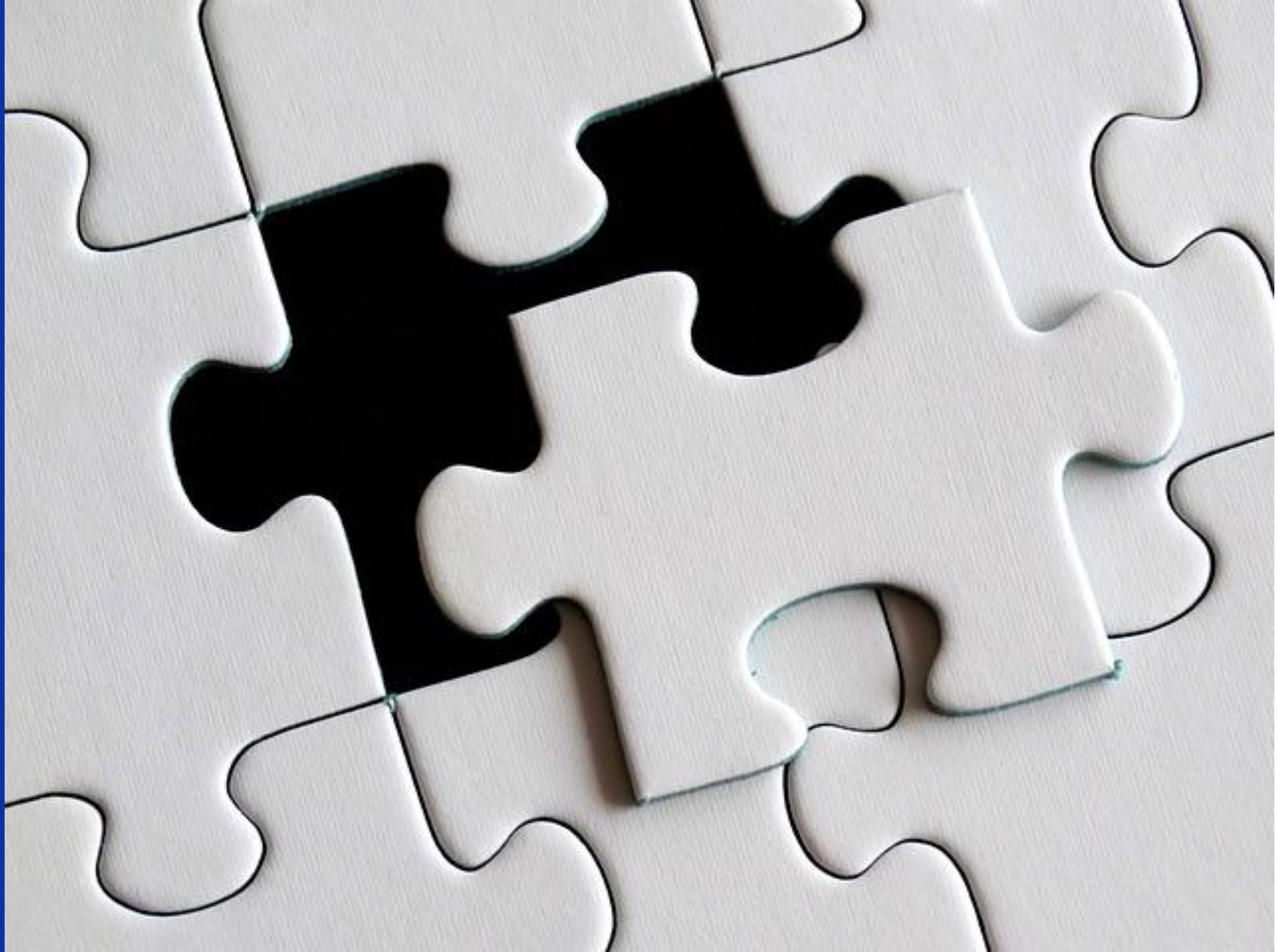


Shot Chart by Type for the Toronto Raptors 2022-23 Regular Season



Fit?

- Extra-Curricular Club with school or community organization
- Classroom program
- Math, Science, Phys. Ed, IDC, French and more!



Requirements and More

- Chromebook Friendly
- Online Tools – Python in Jupyter notebooks
- Log in with Google or Microsoft
- Student Privacy Protected
- French for the Fall





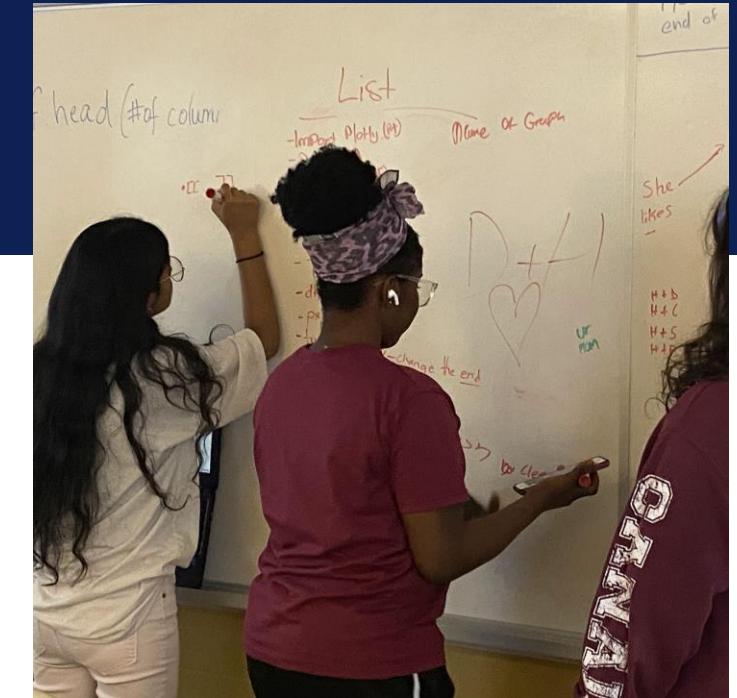
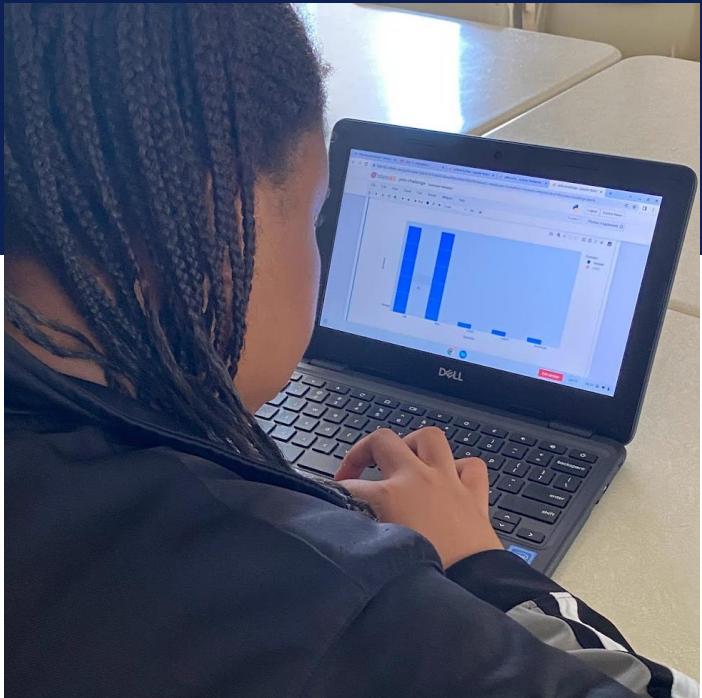
Bit.ly/DataDunkers



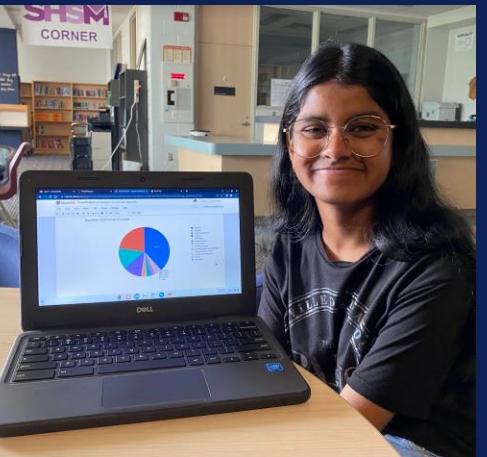
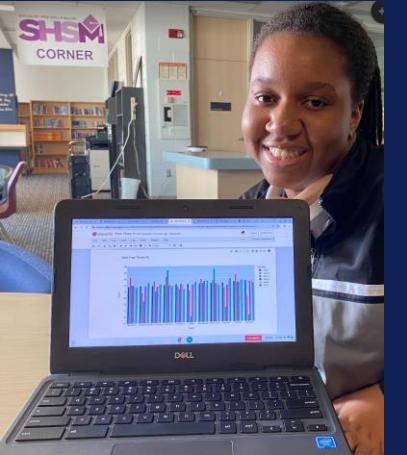
- 1. Learn data science through basketball stats and Pascal Siakam (PS43)**
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Objectives of the Program

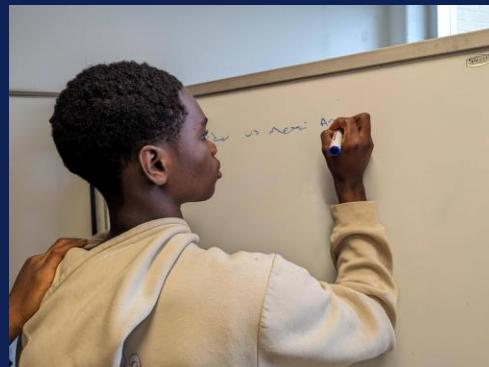
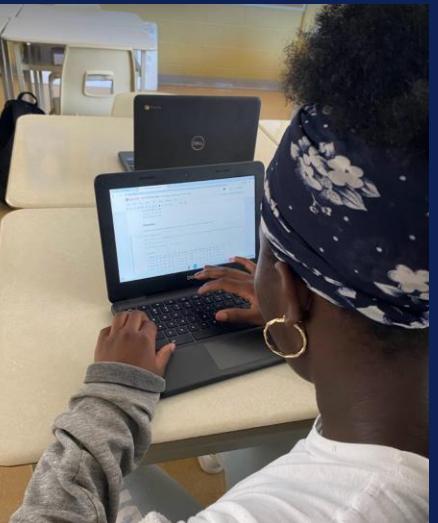
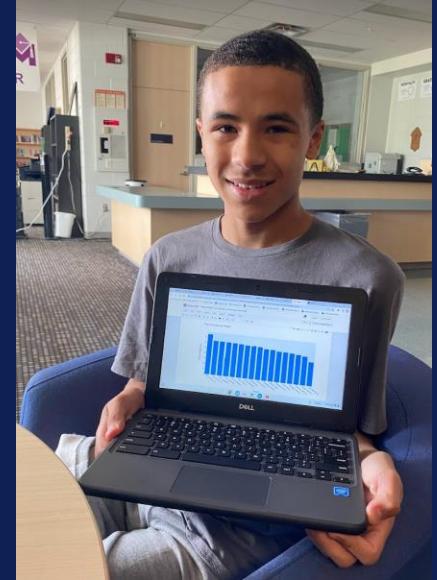
July Incubator - Let's Go!







- 1.Cleantha
- 2.Hilda
- 3.Savannah
- 4.Favour
- 5.Munachiso
- 6.Derion
- 7.Tawab



Student Presentations

PS43 Thank You



Certificates



Certificate of Completion

Name of Student

has successfully completed the Data Dunker Challenge

A handwritten signature in black ink that appears to read "Siakam".

Pascal Siakam
Power Forward, No. 43 Toronto Raptors

A handwritten signature in black ink that appears to read "Pamela".

Pamela Pelletier
Country Leader & Managing Director at Dell Technologies Canada



McGill Hackathon

```

import pandas as pd
import plotly.express as px
per_game = pd.read_html('https://www.basketball-reference.com/players/s/siakapa01.html')[2]
draft_class = pd.read_html('https://www.basketball-reference.com/draft/NBA_2016.html')[0]
per_gameHB = pd.read_html ('https://www.basketball-reference.com/players/h/hieldbu01.html')[2]
per_gameJB = pd.read_html ('https://www.basketball-reference.com/players/b/brownja02.html')[2]
per_gameBT = pd.read_html ('https://www.basketball-reference.com/players/i/ingrabr01.html#per_game')[1]
per_gameDS = pd.read_html ('https://www.basketball-reference.com/players/s/sabondo01.html')[2]
draft_class = draft_class.fillna(0)
draft_class = draft_class.drop([30, 31]).reset_index(drop=True)
draft_class.columns = draft_class.columns.droplevel()
draft_class.columns = ['Rk', 'Pk', 'Tm', 'Player', 'College', 'Yrs', 'G', 'MP', 'PTS', 'TRB', 'AST', 'FG%', '3P%', 'FT%', 'MPG', 'PTSPG', 'TRBPG', 'ASTPG', 'BLKPG', 'STLPG', 'TOVPG', 'PFPG', 'BLK', 'TOV', 'PF', 'PTS']
for column in draft_class.columns:
    draft_class[column] = pd.to_numeric(draft_class[column], errors='ignore')
print('Libraries and data imported')
print(per_game.head())

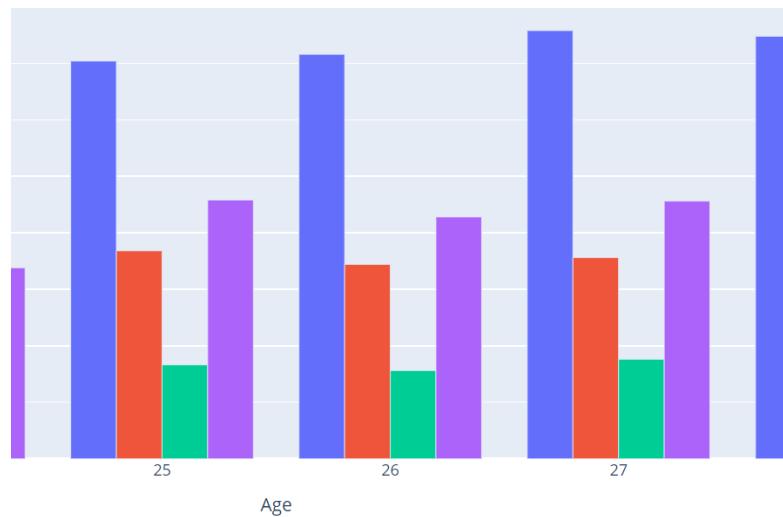
```

Libraries and data imported

Season	Age	Tm	Lg	Pos	G	GS	MP	FG	FGA	...	FT%	ORB	DRB	\
0	2016-17	22.0	TOR	NBA	PF	55	38	15.6	1.9	3.7	...	0.688	1.2	2.2
1	2017-18	23.0	TOR	NBA	PF	81	5	20.7	3.1	6.1	...	0.621	1.0	3.5
2	2018-19	24.0	TOR	NBA	PF	80	79	31.9	6.5	11.8	...	0.785	1.6	5.3
3	2019-20	25.0	TOR	NBA	PF	60	60	35.2	8.3	18.4	...	0.792	1.1	6.3
4	2020-21	26.0	TOR	NBA	PF	56	56	35.8	7.8	17.2	...	0.827	1.7	5.5

TRB	AST	STL	BLK	TOV	PF	PTS
0	3.4	0.3	0.5	0.8	0.6	2.0
1	4.5	2.0	0.8	0.5	0.8	2.0
2	6.9	3.1	0.9	0.7	1.9	3.0
3	7.3	3.5	1.0	0.9	2.5	2.8
4	7.2	4.5	1.1	0.7	2.3	3.1

[5 rows x 30 columns]





Timeline for Program

Timeline	Item	Dell	PS43	School District(s)
April - June 2023	Develop Program Resource	x	x	x
July 2023	Pilot Summer Incubator Camp with small group of students & Educator(s)	x	x	x
August 2023	Develop PL for Educators	x	x	x
Sept. 7th	Official Launch of Program – Dell Tech Forum	x	x	
Oct. 2023	Educator PL and Begin implementation in GTA district(s)	x	x	x
Nov. 2023	Share the Program across the country	x	x	x
Dec. 2023	Celebration!!!!	x	x	x
Dec. 2023	Collect feedback and evaluate program effectiveness	x	x	x
Jan. 2024	Make necessary adjustments to program	x	x	x
March - May 2024	Expand program to support more students	x	x	x
June 2024	Celebration!!!!	x	x	x
July 2024	Next Summer camp - Level 2	x	x	x



"The world is evolving with technology and data science, at the speed of light. It is important that we provide opportunities for our youth to get exposure to the new ways in which the world is evolving and ensure they are prepared for new ways of working in the future."

Pascal Siakam

DataDunkers@Dell.com





David Hay

Learning Development Manager

David.Hay@cybera.ca

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DELL Technologies



Katina Papulkas
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