VELPHLA UNIVERSITY – DATA SCHOOL

HANNAH AFUA NYARKO

TASK 6C / ID010

TECHNICAL REPORT

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Introduction to Data Analytics

Data analytics examines, cleans, transforms, and models data to discover meaningful patterns, insights, and trends. It involves extracting valuable information from large datasets to support decision-making. Organizations can optimize processes, improve efficiency, and gain a competitive edge by leveraging techniques such as descriptive, diagnostic, predictive, and prescriptive analytics.

The benefit of data analytics

- Cost Reduction
- Effective Decision Making
- Good resource utilization
- Improved Efficiency

Data Science and Data Analytics

Data Science is an interdisciplinary field that leverages scientific methods, procedures, algorithms, and systems to extract knowledge and insights from structured and unstructured data. Data science involves the collection, processing, and analysis of data to gain valuable insights for various purposes. This field has gained significant attention, often dubbed the 'sexiest job of the 21st century'. This label reflects the field's importance, underscored by the US Bureau of Labor Statistics' prediction of a 36% growth in data scientist roles between 2021 and 2031.

Similarly, **data analytics** involves using tools and processes to combine and examine datasets, identifying patterns, and developing actionable insights. While both fields aim to help organizations make better, data-driven decisions, data analytics typically focuses on answering specific questions rather than open-ended exploration. Analysts in this field develop methods to capture, process, and organize data, uncovering actionable insights to solve current problems and presenting the data effectively. In essence, data analytics is about solving known problems to produce immediate improvements.

Differences between data science and data analytics

1. **Scope:**
    - Data Science: Broader role, involving modeling data for predictions, identifying opportunities, and supporting strategies. Focuses on understanding the future.

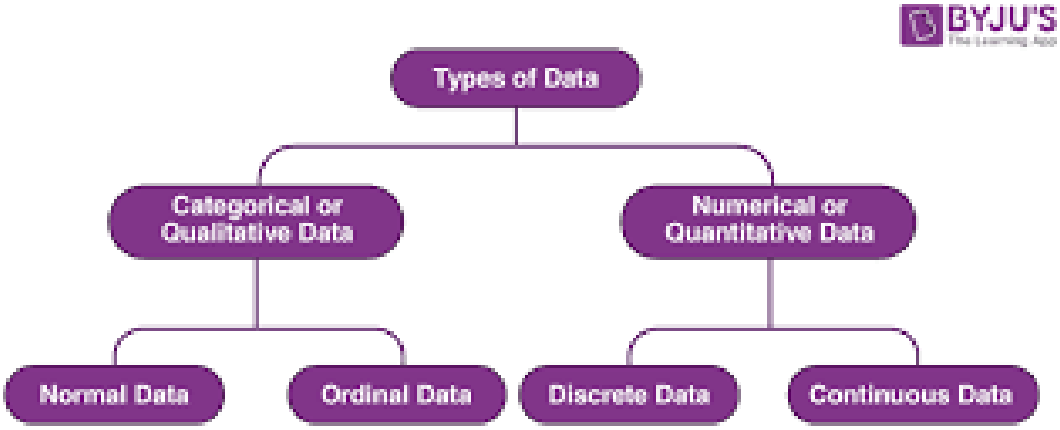
- Data Analytics: More specific role, centered around solving problems and spotting trends. Works with data as a snapshot of the present.

2. **Database Manipulation and Management:**
   - Data Science: Utilizes algorithms and machine learning to enhance data's alignment with business goals.
   - Data Analytics: Collects, stores, maintains data, and analyzes results.

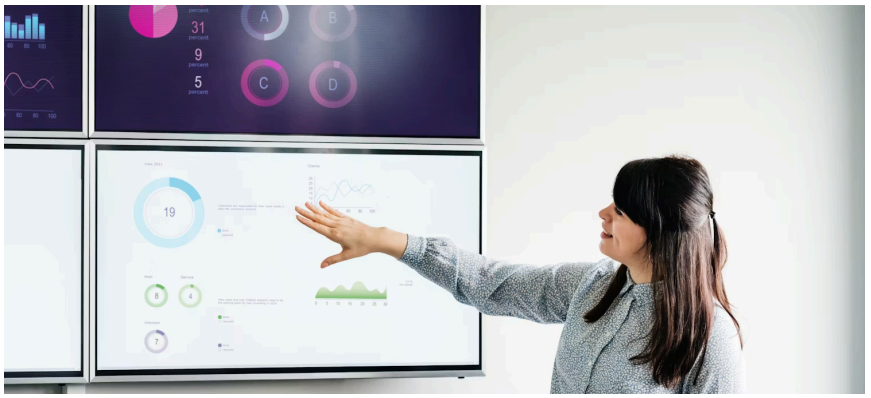
3. **Questions and Answers:**
   - Data Science: Identifies questions and determines the best approach to find answers.
   - Data Analytics: Receives questions and provides answers through data analysis.

Categories of Data

1. **Nominal Data:** Nominal data refers to categorical information that lacks inherent order or ranking. It is used to classify or group items based on their attributes. Examples include gender, nationality, or hair color.
2. **Ordinal Data:** The Ordinal data follows a natural order and is commonly found in surveys, finance, economics, and questionnaires. It is represented using bar charts.
3. **Discrete Data:** Contains only a finite number of possible values. And is often represented as whole numbers (e.g., number of employees, students, cars).
4. **Continuous Data:** Can take any value within a specific range and is analyzed using summary statistics (mean, median, standard deviation) and visualizations (histograms, scatterplots, line charts).
5. **Quantitative Data:** Also known as numerical data, includes both discrete and continuous data.
6. **Qualitative Data:** Also called categorical data and describes data that fit into categories. It includes nominal and ordinal data.



Data Visualization



Data visualization is a powerful technique that transforms raw data into visual representations, making it easier to understand and interpret.
Here are the key points:

1. **Purpose:** Data visualization helps convey information effectively by turning numbers and spreadsheets into graphs, charts, and maps.
2. **Audience:** It's not just for data professionals; everyone benefits from visualized data. For instance, health agencies use maps to show vaccination coverage.
3. **Benefits:**
    - Storytelling: Colors and patterns in visualizations reveal insights and trends.
    - Accessibility: Visualizations are easy to understand for diverse audiences.
    - Relationships: Graphs and charts help spot patterns within data.
    - Exploration: Accessible data encourages exploration and informed decisions.
4. **Disadvantages:**
    - Misleading Interpretations: Visualizations can be misunderstood, leading to incorrect conclusions.
    - Data Quality: Poor data quality affects the accuracy of visualizations.
    - Information Overload: Too many visualizations can overwhelm users.
    - Security and Privacy: Visualizations may expose sensitive information.
    - Technology Dependence: Creating visualizations requires technology.
    - Accessibility: Not everyone can interpret complex visualizations.
5. **Types of Visualizations:**
    - Table: Rows and columns of data.
    - Charts/Graphs: Represent data using bars, points, or lines.
    - Gantt Chart: Shows timelines and tasks (used in project management).
    - Pie Chart: Divides data into percentages.
    - Geospatial Visualization: Maps with shapes and colors.
    - Dashboard: Comprehensive display of data

6. **Tools for visualizing data:**
    - Power Bi
    - Tableau
    - Google Charts

Big Data vs Small Data

1. **Small Data:** Small data refers to data that is simple in format and small enough in volume to be processed by a single machine or understood by an individual. It provides timely, meaningful insights that are organized and packaged for everyday decision-making. Some examples are Customer Satisfaction Surveys and online shopping data charts.

    Benefits:

    - **Higher Availability**: Small data is readily available since anyone with a computer or smartphone generates it.
    - **Simplicity**: Easily understood by humans, making it valuable for stakeholders and decision-makers.
    - **Immediate Business Intelligence**: Quick turnaround from data generation to informed decisions.
    - **Cost Savings**: Accessible without costly data infrastructure.

2. **Big Data:** These are Large chunks of structured and unstructured data that conventional processing techniques can't manage. It requires strong computing resources (hardware, software, algorithms) to discover patterns, insights, and trends. Also used globally for improving customer service, refining marketing, and making informed business decisions. Some examples of big data applications are Transportation, Advertising, Financial Services, and Government.

    Benefits:

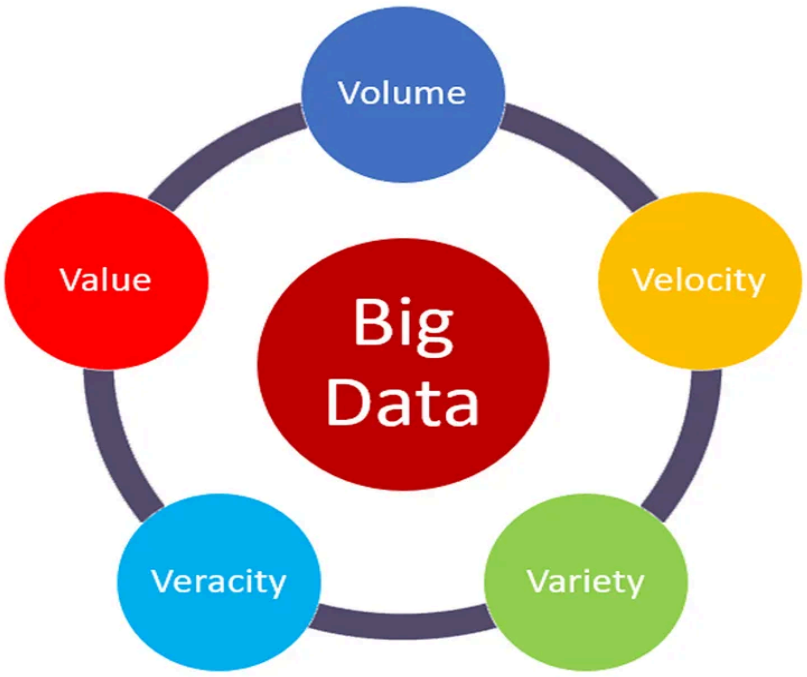
    - **Product/Service Development:** Big data provides insights into public opinions (e.g., from unstructured social media text) to enhance product development.
    - **Predictive Analysis:** Scanning social media feeds and news reports using big data helps stay ahead of competitors.

- **Risk Reduction:** Conduct health tests on customers, suppliers, and stakeholders to mitigate risks (e.g., default).
- **Data Security:** Big data tools map a company's data landscape, aiding in internal threat analysis and ensuring sensitive information has proper protection.

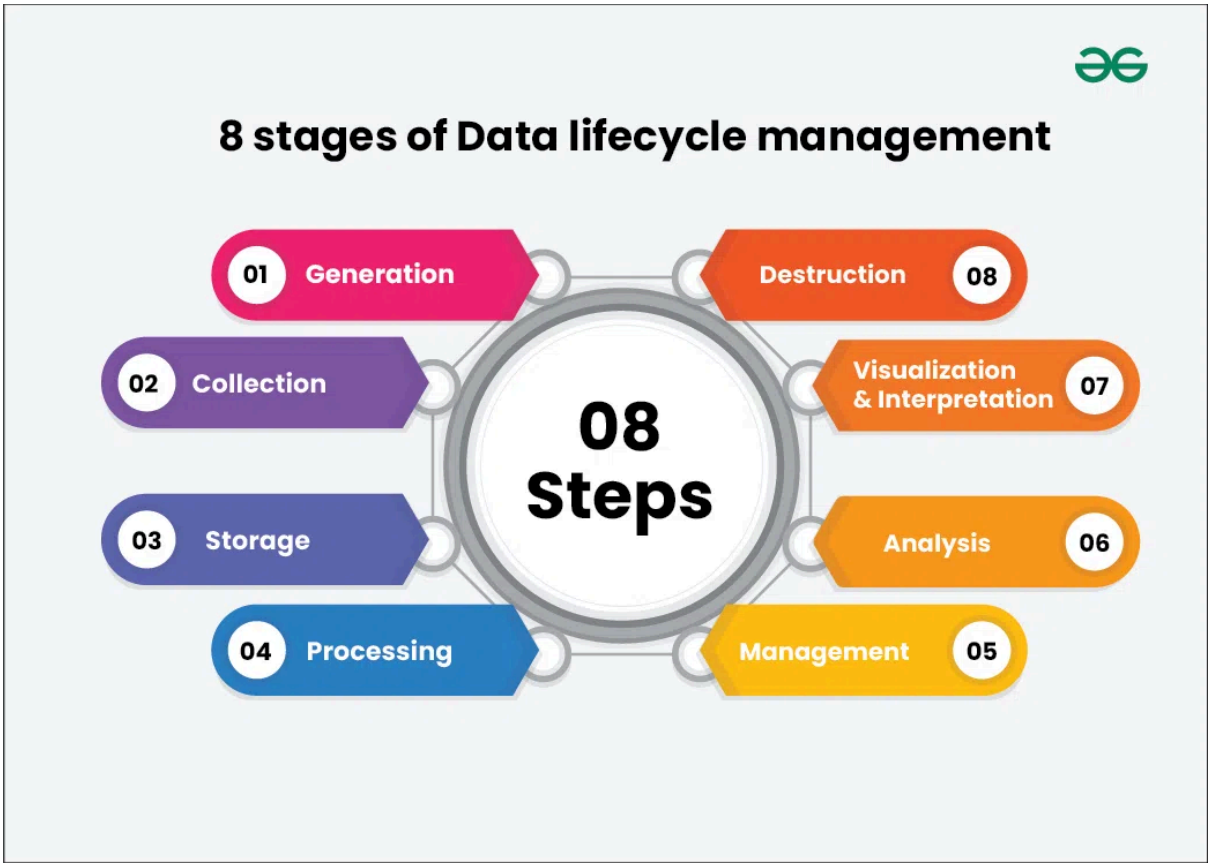
The 5Vs of Big Data and Data Lifecycle

The 5Vs are used to describe big data which is also known as the characteristics of big data that relate to volume, velocity, variety, veracity, and value.

1. **Volume:** Refers to the sheer amount of data generated. From social media posts to IoT sensor readings, the volume is massive. Big data technologies help manage and store this data efficiently.
2. **Velocity**: Describes the speed at which data is generated and processed. Think of video uploads on YouTube or emails sent via Gmail—data flows rapidly.
3. **Variety:** Data comes in various forms—structured (like spreadsheets), unstructured (text, images, audio), and semi-structured (sensor data). Big data encompasses this diverse range.
4. **Veracity:** Ensures data quality and accuracy. Since data comes from multiple sources, verifying its credibility is crucial for reliable insights.
5. **Value:** Ultimately, big data's worth lies in its ability to provide valuable insights for decision-making.



A **data lifecycle** illustrates how data (in all its various forms and derivatives, including data points, datasets, databases, data files, visualizations, and code) conceptually flows through its lifecycle of usefulness. 8 stages of the data lifecycle represent the journey data takes from its creation to its eventual deletion.



1. **Generation:** Data begins its journey when it's created. Whether it's customer transactions, sensor readings, or social media interactions, this stage marks the birth of data.
2. **Data Collection:** Not all generated data is useful. Organizations identify and gather specific data points through forms, APIs, or sensors. Quality matters here!
3. **Data Storage:** Safeguarding collected data is crucial. It finds a home in databases, data warehouses, or cloud storage solutions.
4. **Data Processing:** Raw data isn't user-friendly. Processing involves cleaning, organizing, and transforming it:
    - Data wrangling: Fixing inconsistencies and missing values.
    - Data compression: Shrinking data size without losing vital information.
    - Data encryption: Adding security layers.
    - Data transformation: Shaping data for analysis.
5. **Data Management:** Data needs care! Accuracy, security, and accessibility are maintained throughout its lifecycle. Think of it as data housekeeping.

6. **Data Analysis:** The magic happens here! Processed data reveals patterns and insights. Techniques like statistical methods, machine learning, and data mining come into play.
7. **Data Visualization & Interpretation:** Insights are presented visually—charts, graphs, and dashboards. It's like telling a data story that users can easily understand.
8. **Data Destruction:** Data isn't immortal. Some must comply with legal retention requirements; others become irrelevant. Secure deletion or anonymization ensures privacy.

Data Entry and Analysis

Understanding how to use Excel for data entry and understanding uses of the following

- Ribbons
- Tabs
- Cell
- Column and Rows
- Sheet
- How to save the Excel document
- Inputting Values
- How to format, add rows, and columns, create headers, and sort values9
- How to add borders
- Convert data into a standard Excel table by selecting any area of the data and using the Ctrl T function, this helps to filter specific details in your data

Data Entry Task 4a – Replicate the Data Entry done in class by inputting my data values

HANNAH NYARKO TASK 4A - DATA ENTRY						
S/N	NAME	PHONE NUMBER	ACCOUNT NUMBER	REGION	STATE	SALARY
1	Adebayo	08045091234	0089770332	South South	Bayelsa	₦ 670,000
2	Adetola	08156723490	0098704563	South West	Ondo	₦ 13,000
3	Alex	08188456790	0041509234	South East	Imo	₦ 20,000
4	Charity	08067823356	0045045012	South West	Ondo	₦ 110,000
5	Charles	08023478902	0078092345	South East	Abia	₦ 45,000
6	Chiamaka	08091236745	0067089123	North West	Zamfara	₦ 250,000
7	Chidimma	08125678903	0703456701	South West	Oyo	₦ 23,456
8	Dare	08068221107	0089023076	North West	Sokoto	₦ 300,000
9	Felix	08067556624	0230890232	South South	Delta	₦ 500,000
10	Gideon	08099554728	0006677234	South West	Lagos	₦ 600,000
11	Gift	08067345678	0089720201	North Central	Kwara	₦ 230,000
12	Hannah	08025676829	0045674367	North West	Kaduna	₦ 400,000
13	Judith	08099675543	0078023678	North West	Kebbi	₦ 125,000
14	Mariam	08011356711	0078348901	North West	Kano	₦ 55,000
15	Mary	08035467890	0034056781	North East	Borno	₦ 100,000
16	Muna	08166723356	0080901123	North East	Taraba	₦ 120,000
17	Precious	08023678901	0060670112	South West	Lagos	₦ 23,490
18	Seun	09067824567	0089560234	South West	Osun	₦ 150,000
19	Uche	08079028567	0094002345	North East	Gombe	₦ 900,000
20	Victoria	08177683902	0234567901	South East	Enugu	₦ 350,000

Data Entry Task 4b – More Data Entry is done inputting my data values

HANNAH NYARKO TASK 4B - DATA ENTRY									
CUSTOMER ID	FIRST NAME	MIDDLE NAME	SURNAME	DATE OF BIRTH	GENDER	PHONE NUMBER	STATE	EMAIL	SALARY
1	Hannah	Afua	Nyarko	19/02/1996	Female	08179023453	Lagos	hannah.nyarko@gmail.com	₦ 200,000
2	Daniel	Abel	Chinonso	02/04/1997	Male	09023467890	Kano	daniel.chinonso@gmail.com	₦ 300,000
3	Emeka	Precious	Ikechukwu	20/02/1998	Male	08145690821	Anambra	emeka.ikechukwu@gmail.com	₦ 500,000
4	Aminat	Peace	Joseph	02/07/1999	Female	07045677821	Ogun	aminat.joseph@gmail.com	₦ 20,000
5	Queenth	Chiamaka	Ebuka	21/03/1994	Female	08034561120	Enugu	queenth.ebuka@gmail.com	₦ 30,000
6	Eze	Ebuka	John	02/02/1989	Male	08056342311	Abia	eze.john@gmail.com	₦ 45,000
7	Joy	Mandy	Caleb	08/05/1996	Female	08078902356	Kaduna	joy.caleb@gmail.com	₦ 14,000
8	Rejoice	Naomi	Seyi	02/03/1999	Female	08079029510	Ekiti	rejoice.seyi@gmail.com	₦ 14,000
9	Felix	Izu	Antai	02/09/1987	Male	09021056790	Cross River	felix.antai@gmail.com	₦ 140,000
10	Benjamin	Chinedu	Emmanuel	25/04/1998	Male	08134598701	Akwa Ibom	benjamin.emmanuel@gmail.com	₦ 340,000
11	Godstime	Ebube	Ikechukwu	03/01/2001	Male	08034568901	Imo	godstime.ikechukwu@gmail.com	₦ 500,000
12	Izu	Emmanuel	Innocent	22/07/2010	Male	08012346789	Rivers	izu.innocent@gmail.com	₦ 345,000
13	Israel	Oshoke	Emmanuel	23/02/1987	Male	09023456789	Delta	israel.emmanuel@gmail.com	₦ 445,000
14	Sylvia	Eno	Bassey	24/09/1993	Female	09023567890	Bayelsa	sylvia.bassey@gmail.com	₦ 230,000
15	Mattew	Liam	Ayomikun	14/06/1990	Male	08156789230	Osun	mattew.ayomikun@gmail.com	₦ 54,000
16	Sarah	Princess	Kunle	17/02/1992	Female	08145238901	Ondo	sarah.kunle@gmail.com	₦ 78,000
17	David	Chukwuka	Emmanuel	02/07/1998	Male	08056078930	Edo	david.emmanuel@gmail.com	₦ 45,000
18	Timothy	Andrew	Emeka	09/12/2000	Male	08024679082	Ebonyi	timothy.emeka@gmail.com	₦ 340,000
19	Oma	Blessing	Chinedu	12/10/1995	Female	08045789023	Kwara	oma.chinedu@gmail.com	₦ 100,000
20	Esther	Ekomobong	Timothy	01/11/1993	Female	08134678021	Kogi	esther.timothy@gmail.com	₦ 120,000
21	Courage	Udoh	Udoh	11/11/2008	Male	08044552100	Plateau	courage.udoh@gmail.com	₦ 300,000
22	Oluwaseyi	Godwin	Mattew	15/04/2002	Male	08093345011	Oyo	oluwaseyi.mattew@gmail.com	₦ 300,000
23	Ayobami	Adetola	Elegbede	02/12/1999	Female	08011567890	Ekiti	ayobami.elegbede@gmail.com	₦ 300,000
24	Ayodeji	Daniel	Ogun	12/02/2007	Male	08032109045	Lagos	ayodeji.ogun@gmail.com	₦ 300,000
25	Chuks	Abel	Ebube	19/02/2020	Male	09023567890	Anambra	chuks.ebube@gmail.com	₦ 300,000
26	Funsho	Samson	Kunle	12/06/1996	Male	09023450678	Osun	funsho.kunle@gmail.com	₦ 300,000
27	Bukola	Loveth	Akano	19/02/2022	Female	08065447382	Ogun	bukola.akano@gmail.com	₦ 300,000
28	Yemi	Benita	Prince	19/02/2023	Male	08045678902	Ogun	yemi.prince@gmail.com	₦ 300,000
29	Victoria	Eno	Jackson	19/02/2024	Female	08055489023	Abuja (FCT)	victoria.jackson@gmail.com	₦ 300,000
30	Dare	David	Adebayo	19/02/2025	Male	09023456789	Lagos	dare.adebayo@gmail.com	₦ 300,000

Data Cleaning

Data cleaning Is the process of detecting and correcting (or removing) corrupt or inaccurate records from a record set, table, or database. This is important because it makes the dataset easy to read, interpret, and consistent. It also allows you to produce accurate results and quality data.

Steps in Data Cleaning

- Inspect the data to see if it is clean
- Run your data through some analysis
- Remove blank spaces, empty rows, duplicates
- Duplicate the Dirty dataset so you can do a clean one (Comparing them at the end)

Data Cleaning Task 4c – Dirty Dataset – replicate from class

Year	Album	Artist	Genre	Subgenre	Total Sales
1967	Sgt. Pepper's Lonely Hearts Club Band	THE Beatles	Rock	Rock & Roll, Psychedelic Rock	2992803
1966	Pet Sounds	The Beach Boys	Rock	Pop Rock, Psychedelic Rock	3783352
1966	Revolver	The Beatles	Rock	Psychedelic Rock, Pop Rock	22661661
1965	Highway 61 Revisited	Bob DYLAN	Rock	Folk Rock, Blues Rock	10936312
1965	Rubber Soul	The Beatles	Rock, Pop	Pop Rock	11282577
1971	What's Going On	Marvin GAYE	Funk / Soul	Soul	19573101
1972	Exile on Main St.	THE Rolling Stones	Rock	Blues Rock, Rock & Roll, Classic Rock	3292646
1979	London Calling	The Clash	Rock	Punk, New Wave	23393897
1966	Blonde on Blonde	Bob Dylan	Rock, Blues	Folk Rock, Rhythm & Blues	24009130
1968	The Beatles ("The White Album")	The Beatles	Rock	Rock & Roll, Pop Rock, Psychedelic Rock, Experimental	10005059
1976	The Sun Sessions	Elvis Presley	Rock	Rock & Roll	7808789
1959	Kind of Blue	Miles DAVIS	Jazz	Modal	20638379
1959	Kind of Blue	Miles Davis	Jazz	Modal	20638379
1967	The Velvet Underground & Nico	The Velvet Underground	Rock	Garage Rock, Art Rock, Experimental	26755705
1969	Abbey Road	The Beatles	Rock	Psychedelic Rock, Classic Rock, Pop Rock	13837411
1967	Are You Experienced	The Jimi Hendrix Experience	Rock, Blues	Blues Rock, Psychedelic Rock	6701639
1975	Blood on the Tracks	Bob Dylan	Rock	Folk Rock, Acoustic, Ballad	16273847
1991	Nevermind	Nirvana	Rock	Alternative Rock, Grunge	6760104
1975	Born to Run	Bruce Springsteen	Rock	Pop Rock	11590503
1968	Astral Weeks	Van Morrison	Jazz, Rock, Blues, Folk, World, & Country	Acoustic, Classic Rock, Free Improvisation	19076261
1982	Thriller	Michael Jackson	Funk / Soul, Pop	Disco	26706043
1982	Thriller	Michael Jackson	Funk / Soul, Pop	Disco	26706043
1982	The Great Twenty_Eight	Chuck Berry	Rock	Rock & Roll	28459268
1990	The Complete Recordings	Robert JOHNSON	Blues	Delta Blues	10944190
1970	John Lennon/Plastic Ono Band	John Lennon / Plastic Ono Band	Rock	Pop Rock	20306146
1973	Innervisions	Stevie Wonder	Funk / Soul	Soul	9257842
1963	Live at the Apollo, 1962	James Brown	Funk / Soul	Rhythm & Blues, Soul	15842619
1977	Rumours	Fleetwood Mac	Rock	Pop Rock	16341638
1987	The Joshua Tree	U2	Rock	Alternative Rock, Pop Rock	5276843
1971	Who's Next	The Who	Rock	Rock, Mod, Prog Rock, Psychedelic Rock	4432402

Cleaned Dataset

HANNAH NAYRKO TASK 4C ID010				
Album	Artist	Genre	Subgenre	Total Sales
1967 Sgt. Pepper's Lonely Hearts Club Band	The Beatles	Rock	Rock & Roll, Psychedelic Rock	$2,992,803
1966 Pet Sounds	The Beach Boys	Rock	Pop Rock, Psychedelic Rock	$3,783,352
1966 Revolver	The Beatles	Rock	Psychedelic Rock, Pop Rock	$22,661,661
1965 Highway 61 Revisited	Bob Dylan	Rock	Folk Rock, Blues Rock	$10,936,312
1965 Rubber Soul	The Beatles	Rock, Pop	Pop Rock	$11,282,577
1971 What's Going On	Marvin Gaye	Funk / Soul	Soul	$19,573,101
1972 Exile on Main St.	The Rolling Stones	Rock	Blues Rock, Rock & Roll, Classic Rock	$3,292,646
1979 London Calling	The Clash	Rock	Punk, New Wave	$23,393,897
1966 Blonde on Blonde	Bob Dylan	Rock, Blues	Folk Rock, Rhythm & Blues	$24,009,130
1968 The Beatles ("The White Album")	The Beatles	Rock	Rock & Roll, Pop Rock, Psychedelic Rock, Experimental	$10,005,059
1976 The Sun Sessions	Elvis Presley	Rock	Rock & Roll	$7,808,789
1959 Kind of Blue	Miles Davis	Jazz	Modal	$20,638,379
1967 The Velvet Underground & Nico	The Velvet Underground	Rock	Garage Rock, Art Rock, Experimental	$26,755,705
1969 Abbey Road	The Beatles	Rock	Psychedelic Rock, Classic Rock, Pop Rock	$13,837,411
1967 Are You Experienced	The Jimi Hendrix Experience	Rock, Blues	Blues Rock, Psychedelic Rock	$6,701,639
1975 Blood on the Tracks	Bob Dylan	Rock	Folk Rock, Acoustic, Ballad	$16,273,847
1991 Nevermind	Nirvana	Rock	Alternative Rock, Grunge	$6,760,104
1975 Born to Run	Bruce Springsteen	Rock	Pop Rock	$11,590,503
1968 Astral Weeks	Van Morrison	Jazz, Rock, Blues, Folk, World, & Country	Acoustic, Classic Rock, Free Improvisation	$19,076,261
1982 Thriller	Michael Jackson	Funk / Soul, Pop	Disco	$26,706,043
1982 The Great Twenty_Eight	Chuck Berry	Rock	Rock & Roll	$28,459,268
1990 The Complete Recordings	Robert Johnson	Blues	Delta Blues	$10,944,190
1970 John Lennon/Plastic Ono Band	John Lennon / Plastic Ono Band	Rock	Pop Rock	$20,306,146
1973 Innervisions	Stevie Wonder	Funk / Soul	Soul	$9,257,842
1963 Live at the Apollo, 1962	James Brown	Funk / Soul	Rhythm & Blues, Soul	$15,842,619
1977 Rumours	Fleetwood Mac	Rock	Pop Rock	$16,341,638
1987 The Joshua Tree	U2	Rock	Alternative Rock, Pop Rock	$5,276,843
1971 Who's Next	The Who	Rock	Rock, Mod, Prog Rock, Psychedelic Rock	$4,432,402
1969 Led Zeppelin	Led Zeppelin	Rock	Blues Rock, Rock	$19,351,150
1971 Blue	Joni Mitchell	Pop	Acoustic, Ballad, Folk	$16,099,276
1965 Bringing It All Back Home	Bob Dylan	Rock, Folk, World, & Country	Folk Rock, Folk	$18,997,971
1969 Let it Bleed	The Rolling Stones	Rock	Blues Rock, Rock	$17,044,338
1976 Rumours	Fleetwood Mac	Rock	Rock & Roll, Pop	$14,472,118

Below is a link to the Excel workbook

https://docs.google.com/spreadsheets/d/1yCKqW6CJbkZaZrbr66HJq5KJaJhfCNGW/edit?usp=sharing&ouid=110079990637913240496&rtpof=true&sd=true

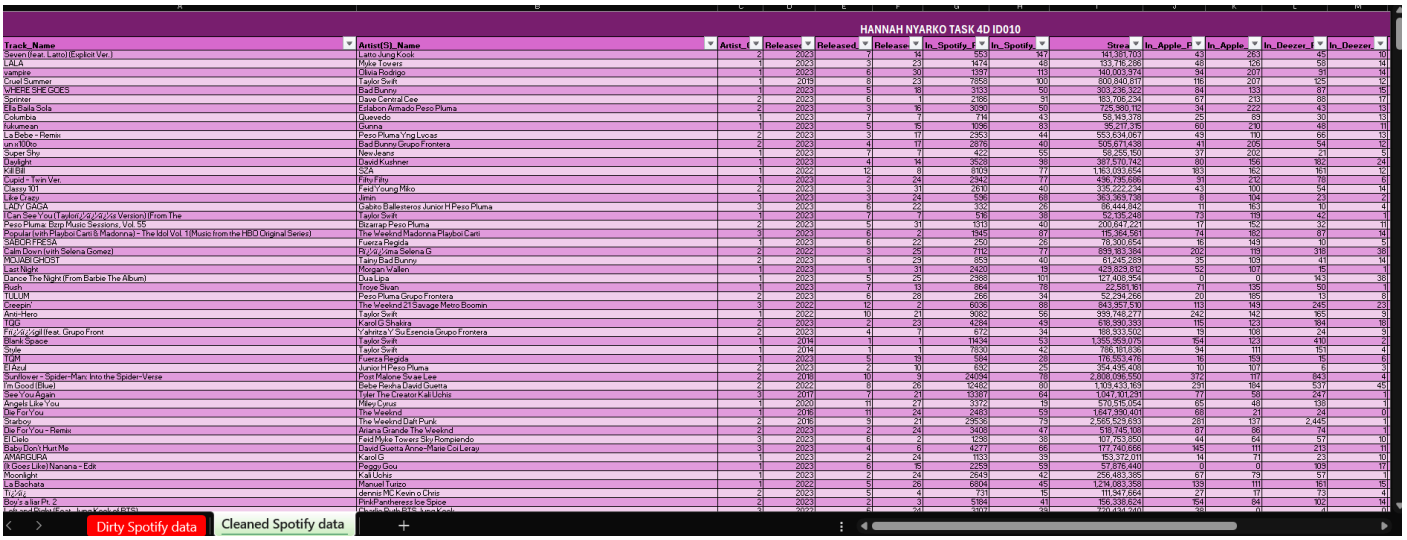
Data Cleaning Task 4d - Downloaded dirty data from Kaggle - Spotify dataset

Dirty Dataset

track_nam	artist(s)_name	artist_cou	released_y	released_r	released_c	in_spotify_	in_spotify_	streams	in_apple_c	in_apple_c	in_deezer_	in_deezer_	in_shazam	bpm	key	mode	danceabili	valence_%	energy_%	acoustic	instrumen	li
Seven (fea	Latto, Jung Kook	2	2023	7	14	553	147	141381703	43	263	45	10	826	125	B	Major	80	89	83	31	0	
LALA	Myke Towers	1	2023	3	23	1474	48	133716286	48	126	58	14	382	92	C#	Major	71	61	74	7	0	
vampire	Olivia Rodrigo	1	2023	6	30	1397	113	140003974	94	207	91	14	949	138	F	Major	51	32	53	17	0	
Cruel Sum	Taylor Swift	1	2019	8	23	7858	100	800840817	116	207	125	12	548	170	A	Major	55	58	72	11	0	
WHERE SI	Bad Bunny	1	2023	5	18	3133	50	303236322	84	133	87	15	425	144	A	Minor	65	23	80	14	63	
Sprinter	Dave, Central Cee	2	2023	6	1	2186	91	183706234	67	213	88	17	946	141	C#	Major	92	66	58	19	0	
Ella Baila S	Eslabon Armado, Peso Pluma	2	2023	3	16	3090	50	725980112	34	222	43	13	418	148	F	Minor	67	83	76	48	0	
Columbia	Quevedo	1	2023	7	7	714	43	58149378	25	89	30	13	194	100	F	Major	67	26	71	37	0	
fukumean	Gunna	1	2023	5	15	1096	83	95217315	60	210	48	11	953	130	C#	Minor	85	22	62	12	0	
La Bebe - R	Peso Pluma, Yng Lvcas	2	2023	3	17	2953	44	553634067	49	110	66	13	339	170	D	Minor	81	56	48	21	0	
un x100to	Bad Bunny, Grupo Frontera	2	2023	4	17	2876	40	505671438	41	205	54	12	251	83	F#	Minor	57	56	72	23	0	
Super Shy	NewJeans	1	2023	7	7	422	55	58255150	37	202	21	5	188	150	F	Minor	78	52	82	18	0	
Flowers	Miley Cyrus	1	2023	1	12	12211	115	1316855716	300	215	745	58	1,021	118		Major	71	65	68	6	0	
Daylight	David Kushner	1	2023	4	14	3528	98	387570742	80	156	182	24	1,281	130	D	Minor	51	32	43	83	0	
As It Was	Harry Styles	1	2022	3	31	23575	130	2513188493	403	198	863	46		174	F#	Minor	52	66	73	34	0	
Kill Bill	SZA	1	2022	12	8	8109	77	1163093654	183	162	161	12	187	89	G#	Major	64	43	73	5	17	
Cupid - Tw	Fifty Fifty	1	2023	2	24	2942	77	496795686	91	212	78	6	0	120	B	Minor	78	76	59	43	0	
What Was	Billie Eilish	1	2023	7	13	873	104	30546883	80	227	95	24	1,173	78		Major	44	14	9	96	0	
Classy 101	Feid, Young Miko	2	2023	3	31	2610	40	335222234	43	100	54	14	187	100	B	Major	86	67	66	14	0	
Like Crazy	Jimin	1	2023	3	24	596	68	363369738	8	104	23	2	29	120	G	Major	63	36	73	0	0	
LADY GAG	Gabito Ballesteros, Junior H, Peso Pluma	3	2023	6	22	332	26	86444842	11	163	10	4	0	140	F	Minor	65	87	74	22	0	
I Can See Y	Taylor Swift	1	2023	7	7	516	38	52135248	73	119	42	1	150	123	F#	Major	69	82	76	6	0	
I Wanna Be	Arctic Monkeys	1	2013	1	1	12859	110	1297026226	24	98	582	2	73	135		Minor	48	44	42	12	2	
Peso Plum	Bizarrap, Peso Pluma	2	2023	5	31	1313	40	200647221	17	152	32	11	139	133	F	Minor	85	81	67	26	0	
Popular (w	The Weeknd, Madonna, Playboi Carti	3	2023	6	2	1945	87	115364561	74	182	87	14	1,093	99	C#	Major	85	83	68	7	0	
SABOR FRI	Fuerza Regida	1	2023	6	22	250	26	78300654	16	149	10	5	168	130	G	Major	79	96	86	9	0	
Calm Dow	Ri¿½i¿½ma, Selena G	2	2022	3	25	7112	77	899183384	202	119	318	38	96	107	B	Major	80	82	80	43	0	
MOJABI GH	Tainy, Bad Bunny	2	2023	6	29	859	40	61245289	35	109	41	14	211	122	F#	Minor	81	74	71	14	0	
Last Night	Morgan Wallen	1	2023	1	31	2420	19	429829812	52	107	15	1	325	204	F#	Major	52	52	68	46	0	
Dance The	Dua Lipa	1	2023	5	25	2988	101	127408954	0	0	143	38	0	110	B	Minor	67	78	85	2	0	
Rush	Troye Sivan	1	2023	7	13	864	78	22581161	71	135	50	1	294	126	F	Minor	74	35	84	0	0	
TULUM	Peso Pluma, Grupo Frontera	2	2023	6	28	266	34	52294266	20	185	13	8	197	168	F#	Major	56	63	87	39	0	
Creepin'	The Weeknd, 21 Savage, Metro Boomin	3	2022	12	2	6036	88	843957510	113	149	245	23	27	98	C#	Minor	71	17	61	36	0	
Anti-Hero	Taylor Swift	1	2022	10	21	9082	56	999748277	242	142	165	9	310	97	E	Major	64	51	63	12	0	
TQG	Karol G, Shakira	2	2023	2	23	4284	49	618990393	115	123	184	18	354	180	E	Minor	72	61	83	67	0	
Los del Es	Big One, Duki, Lit Killah, Maria Becerra, FMK, Rusherking, Emilia, Tiago pzk	8	2023	6	1	1150	31	123122413	22	33	34	7	184	120		Major	81	63	68	11	0	
Fri¿½i¿½g	Yahritza Y Su Esencia, Grupo Frontera	2	2023	4	7	672	34	188933502	19	108	24	9	212	150	F#	Major	61	39	73	37	0	
Blank Spac	Taylor Swift	1	2014	1	1	11434	53	1355959075	154	123	410	2	81	96	F	Major	75	57	68	9	0	

Dirty Spotify data | Cleaned Spotify data | +

Cleaned Dataset



Below is a link to the Excel workbook

https://docs.google.com/spreadsheets/d/1T29Cp9kiP7i20jQg0CquGOREPhYGUQs1/edit?usp=sharing&ouid=110079990637913240496&rtpof=true&sd=true

Data Visualization using Excel: Understanding how to visualize data using Excel

There are two types of chart

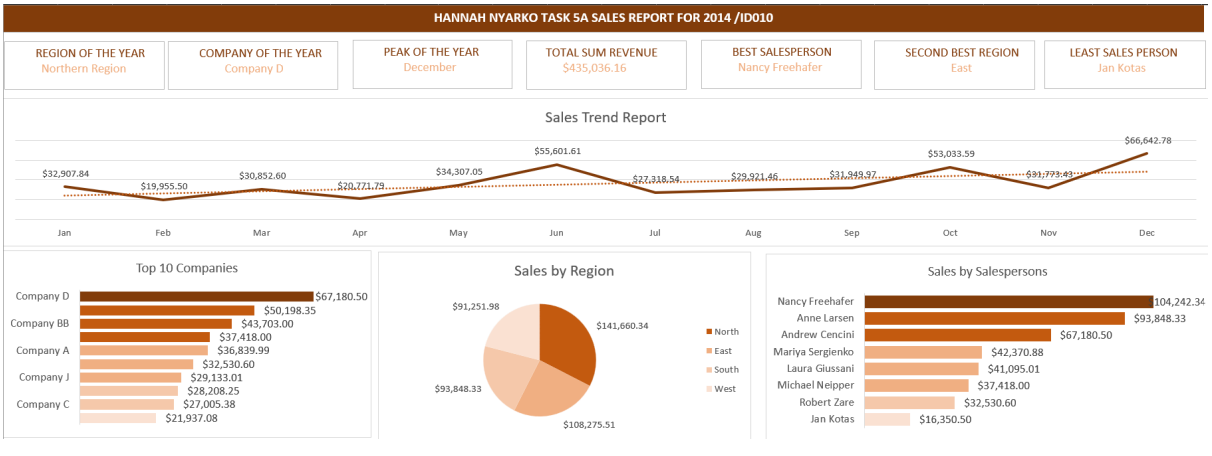
- Normal
- Pivot

Few rules to abide by when analyzing your data

- A bar chart and column chart cannot have more than 10 values
- A pie chart cannot have more than 6 values

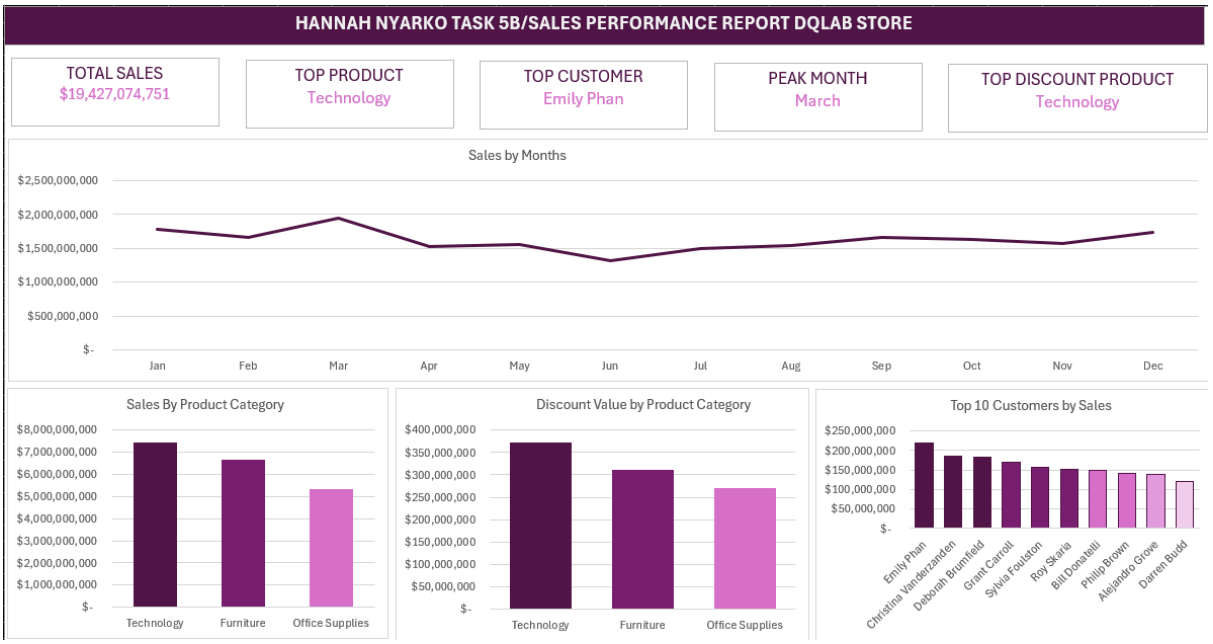
Before visualzing, ensure the data is well-cleaned, and kept on a standard Excel table.

Data Visualization Task 5a – Replicate what was done in class



Below is a link to the Excel work
https://docs.google.com/spreadsheets/d/1eX0bYIEmjiHz6bBld4UnlMjIjGjcqgau/edit?usp=sharing&ouid=110079990637913240496&rtpof=true&sd=true

Data Visualization Task 5b - Download the dataset from Kaggle and visualize



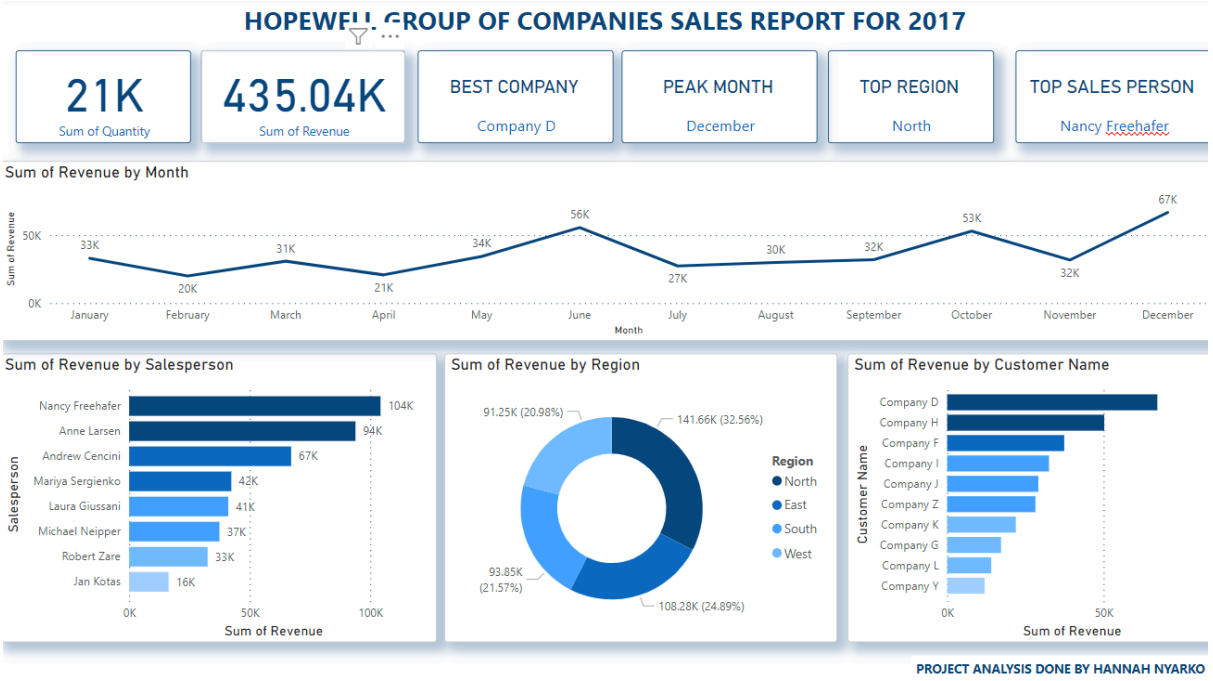
Below is a link to the Excel work
https://docs.google.com/spreadsheets/d/1R-8K8zKT4lG4fjLZ7LG03JgOAL1aFxys/edit?usp=sharing&ouid=110079990637913240496&rtpof=true&sd=true

Data Visualization using Power BI: Power BI which means Business intelligence is a collection of software services, apps, and connectors that work together to turn your unrelated sources of data into coherent, visually immersive, and interactive insights.

Understanding

- How to import data into Power BI
- Data Modelling - Relationship between dataset to dataset to come up with an effective Insight
- Report View

Power BI Dashboard - Replicate what was done in class



Remember, data analytics is not just about numbers; it's about turning data into actionable knowledge! 📊🔍🚀