

Innovative Practices

P24DS103-Essential Statistics with R for Data Science

Class: I M.Sc Data Science

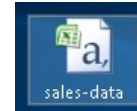
Semester: I

S.No	Roll No	Dataset Name & Fields	Visualization Tasks
58	245229158	E-commerce Sales Data: Order ID, Customer ID, Product, Order Date, Quantity, Price, Discount, Total Sales, Shipping Method, Region	Bar Chart: Compare Total Sales by Product, with Quantity and Price displayed.
			Line Chart: Track Sales Trends over Order Date, showing seasonal variations.
			Pie Chart: Visualize Shipping Method distribution to understand shipping preferences.
			Heatmap: Show Total Sales vs. Quantity by Region to identify sales performance across regions.
			Bubble Chart: Plot Total Sales vs. Quantity, with bubble size representing Discount, to analyze the impact of discounts on sales.

- ❖ You can use any one of the data visualization tools like **MS Excel, Power BI, Tableau Etc**
- ❖ Generate a dataset with 100 Records
 - Copy the **fields** given in **Dataset Name & Fields** and paste it in chatgpt
 - Type the Prompt as “Generate 100 records in csv format

```
csv
Copy code
Order ID, Customer ID, Product, Order Date, Quantity, Price, Discount, Total Sales, Shipping Me
1001, C001, Laptop, 2024-09-01, 1, 1200, 50, 1150, Standard, North
1002, C002, Smartphone, 2024-09-01, 2, 800, 20, 760, Express, South
1003, C003, Headphones, 2024-09-02, 3, 150, 10, 440, Standard, East
```

- Copy the Response by click the “copycode” option.
- Open the notepad and paste the records.’
- Save the file as your **dataset name.csv**. example: **sales-data.csv**
- Close the file and open it in MSEXcel
- Generate the corresponding Charts with appropriate Labels
- Finally Submit the Report as Pdf Sample format is given below



Innovative Practices Report

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Roll No :

Name :

Dataset : E-commerce Sales Data:

Order ID	Customer ID	Order Date	Price		Product	Shipping Method	Region	Total Sales	Quantity	Discount
1001	C001	01-09-2024	1200		Laptop	Standard	North	1150	10	50
1002	C002	01-09-2024	800		Smartphone	Express	South	760	200	20
1003	C003	02-09-2024	150		Headphones	Standard	East	440	3	10
1004	C004	03-09-2024	600		Tablet	Express	West	570	1	30
1005	C005	03-09-2024	200		Smartwatch	Standard	North	370	2	15

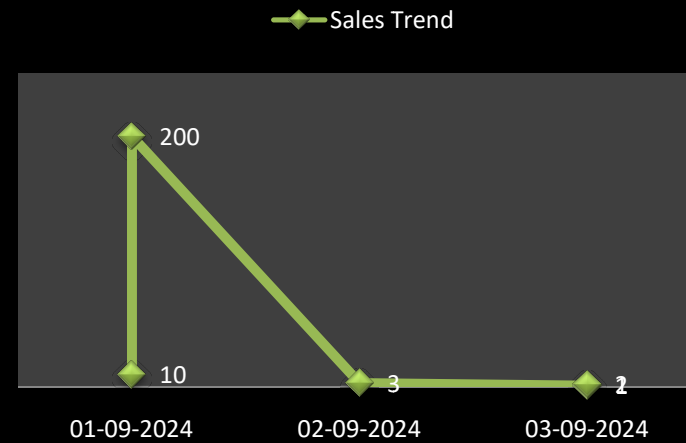
Tasks

- ❖ **Bar Chart:** Compare Total Sales by Product, with Quantity and Price displayed.
- ❖ **Line Chart:** Track Sales Trends over Order Date, showing seasonal variations.
- ❖ **Pie Chart:** Visualize Shipping Method distribution to understand shipping preferences.
- ❖ **Heatmap:** Show Total Sales vs. Quantity by Region to identify sales performance across regions.
- ❖ **Bubble Chart:** Plot Total Sales vs. Quantity, with bubble size representing Discount, to analyze the impact of discounts on sales.

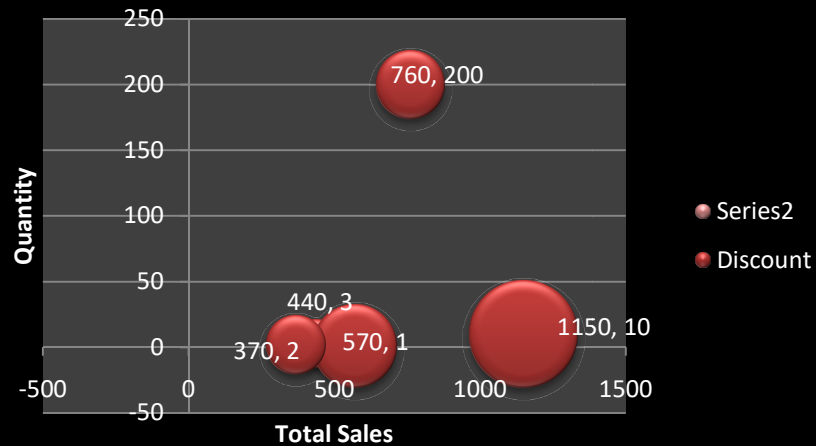
1. Product-Sales



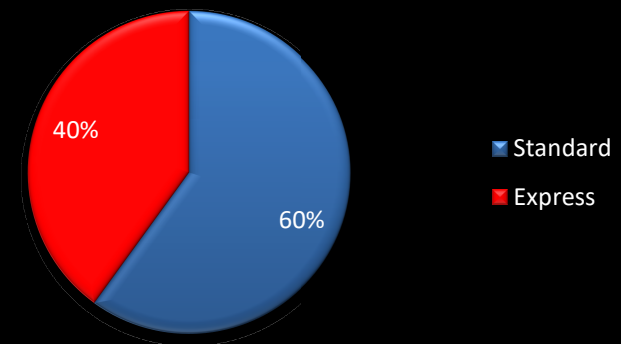
2. Sales Trend Over Date



5. Discount



3. Shipping Method distribution



Order ID	Customer ID	Order Date	Price	Product	Shipping	Region	Total Sales	Quantity	Discount			
1001	C001	01-09-2024	1200	Laptop	Standard	North	1150	10	50	Standard	3	
1002	C002	01-09-2024	800	Smartphone	Express	South	760	200	20	Express	2	
1003	C003	02-09-2024	150	Headphone	Standard	East	440	3	10			
1004	C004	03-09-2024	600	Tablet	Express	West	570	1	30			
1005	C005	03-09-2024	200	Smartwatch	Standard	North	370	2	15			



Values		
Row Label	Sum of Total Sale	Sum of Quantity
East	440	3
North	1520	12
South	760	200
West	570	1
Grand Total	3290	216

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S.No	Roll No	Dataset Name & Fields	Visualization Tasks
1	245229101	Stock Details: Stock ID, Stock Name, Price, Volume, Date, Market Cap, PE Ratio, Dividend Yield, Sector, Industry	Line Chart: Plot the Price over Date to visualize stock price trends.
			Stock Chart: Display Open, High, Low, and Close prices to analyze daily price movements.
			Scatter Plot: Plot Price vs. Volume to explore the relationship between price and trading volume, including trend lines.
			Bubble Chart: Visualize Market Cap vs. PE Ratio with bubble size representing Dividend Yield, showing stock characteristics.
			Heatmap: Show Volume by Date and Sector to identify high trading volumes and sector patterns.
2	245229102	Revenue Data: Company, Revenue, Year, Region, Product Line, Cost, Profit, Growth Rate, Market Share, Employee Count	Column Chart: Illustrate Revenue growth over Year with error bars for uncertainties.
			Treemap: Represent Revenue by Product Line to visualize hierarchical data.
			Area Chart: Display Profit and Cost over time with shaded regions to show financial performance.
			Heatmap: Show Revenue vs. Profit by Region to find patterns and anomalies.
			Pie Chart: Visualize Market Share by Company to understand market distribution.

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S.No	Roll No	Dataset Name & Fields	Visualization Tasks
3	245229103	Sales Data: Order ID, Customer, Order Date, Product, Quantity, Price, Discount, Total Sales, Region, Sales Representative	Line Chart: Track Sales trends by Product and Region over time.
			Column Chart: Compare Sales Amount by Sales Representative, highlighting top performers.
			Scatter Plot: Plot Total Sales vs. Quantity with color coding by Region to analyze sales efficiency.
			Bubble Chart: Show Discount vs. Price with bubble size representing Total Sales, analyzing discount impacts.
			Pie Chart: Visualize Sales distribution by Region to understand regional performance.
4	245229104	Employee Data: Employee ID, Name, Department, Position, Salary, Date Hired, Performance Score, Training Hours, Promotion, Location	Radar Chart: Compare Performance Score across different Departments to assess performance variations.
			Heatmap: Display Salary distribution by Position and Location to identify salary patterns.
			Gantt Chart: Track Training Hours over time with milestones to manage training schedules.
			Treemap: Show employees by Department and Position to visualize organizational structure.
			Box Plot: Analyze Salary distribution across different Departments to identify outliers and trends.

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S.No	Roll No	Dataset Name & Fields	Visualization Tasks
5	245229105	Customer Feedback Data: Customer ID, Feedback Score, Product, Date, Category, Region, Service, Response Time, Satisfaction, Follow-up Required	Column Chart: Compare Feedback Scores by Product, aggregating data to show product performance.
			Radar Chart: Visualize Satisfaction across different Categories to compare satisfaction levels.
			Bubble Chart: Plot Response Time vs. Feedback Score, with bubble size representing Follow-up Required, to evaluate feedback response effectiveness.
			Line Chart: Track Feedback Scores trends over time for various products.
			Pie Chart: Show Feedback distribution by Region to understand regional feedback differences.
6	245229106	Transportation Data: Vehicle ID, Miles Traveled, Fuel Consumption, Cost, Route, Date, Driver, Vehicle Type, Maintenance, Location	Line Chart: Track Fuel Consumption trends over time to assess fuel usage patterns.
			Bar Chart: Compare Cost by Vehicle Type, including average costs.
			Pie Chart: Visualize Cost distribution by Route to determine costliest routes.
			Scatter Plot: Analyze Miles Traveled vs. Fuel Consumption, with regression lines to explore fuel efficiency.
			Surface Chart: Show Maintenance frequency by Location and Vehicle Type to identify maintenance needs and locations.

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S.No	Roll No	Dataset Name & Fields	Visualization Tasks
7	245229107	Sales Performance Data: Salesperson, Sales Amount, Region, Product, Date, Sales Target, Actual Sales, Commission, Quarter, Year	Column Chart: Compare Sales Amount vs. Sales Target by Salesperson, with visual indicators of target achievement.
			Line Chart: Track Actual Sales vs. Sales Target over time with trend lines.
			Treemap: Show Sales by Region and Product with hierarchical details.
			Bullet Chart: Display Target Achievement with performance indicators for each salesperson.
			Heatmap: Visualize Sales Performance by Quarter and Year to identify periods of high or low performance.
8	245229108	Weather Data: Location, Temperature, Humidity, Wind Speed, Date, Precipitation, Air Pressure, Weather Condition, UV Index, Visibility	Line Chart: Plot Temperature and Humidity trends over time with dual axes for better comparison.
			Heatmap: Show Precipitation vs. Visibility by Location to analyze weather conditions.
			Bar Chart: Compare average Wind Speed by Location to determine wind patterns.
			Radar Chart: Visualize Weather Conditions across different Locations for comparison.
			Bubble Chart: Plot UV Index vs. Temperature, with bubble size representing Precipitation, to assess UV exposure and temperature relationship.

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S.No	Roll No	Dataset Name & Fields	Visualization Tasks
9	245229109	Product Inventory Data: Product, Stock Level, Reorder Point, Supplier, Category, Location, Last Restocked, Cost, Retail Price, Sales	Bar Chart: Show Stock Level by Product with Reorder Point highlighted for critical items.
			Line Chart: Track Inventory trends over time with threshold lines for reordering.
			Pie Chart: Visualize inventory distribution by Category to identify major inventory segments.
			Scatter Plot: Compare Cost vs. Retail Price, with color coding by Location, to evaluate pricing strategy.
			Stacked Bar Chart: Illustrate Sales and Stock Level by Location to compare sales performance and inventory levels.
10	245229110	Employee Attendance Data: Employee, Attendance Date, Department, Hours Worked, Absences, Leave Type, Overtime, Shift, Location, Supervisor	Bar Chart: Compare Hours Worked by Department, including average and highest hours worked.
			Line Chart: Show Attendance trends over time with highlighted periods of high or low attendance.
			Pie Chart: Display Absences by Leave Type to understand reasons for absence.
			Scatter Plot: Analyze Overtime vs. Hours Worked, with regression lines to explore patterns.
			Heatmap: Visualize Attendance by Shift and Location to identify attendance patterns and issues.

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S.No	Roll No	Dataset Name & Fields	Visualization Tasks
11	245229111	Customer Purchase Data: Customer, Purchase Amount, Product, Date, Category, Store, Payment Method, Discount, Region, Loyalty Program	Column Chart: Compare Purchase Amount by Product, highlighting top products.
			Line Chart: Track Purchase Trends over time by Region with trend lines for analysis.
			Heatmap: Show Purchase Amount vs. Category and Store to identify high-performance categories and stores.
			Pie Chart: Visualize Payment Method distribution to understand payment preferences.
			Scatter Plot: Plot Purchase Amount vs. Discount, with size representing Loyalty Program participation, to evaluate discount effectiveness.
12	245229112	Online Course Data: Course, Enrollment, Completion Rate, Instructor, Category, Duration, Start Date, End Date, Fee, Rating	Bar Chart: Compare Enrollment by Course with annotations for the top 5 courses.
			Line Chart: Track Completion Rate trends over time for each course, highlighting significant changes.
			Pie Chart: Visualize Enrollment distribution by Category to identify the most popular course categories.
			Heatmap: Show Rating vs. Fee by Course to identify courses with high ratings and varying fees.
			Gantt Chart: Display Course Duration and Completion dates, with milestones for course start and end points.

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S.No	Roll No	Dataset Name & Fields	Visualization Tasks
13	245229113	Event Attendance Data: Event, Attendees, Date, Location, Type, Organizer, Ticket Price, Sponsorship, Duration, Feedback Score	Bar Chart: Compare Attendees by Event with targets and actuals highlighted for evaluation.
			Line Chart: Track Ticket Price trends over time, showing changes in pricing strategy.
			Pie Chart: Display Attendance distribution by Event Type to understand the popularity of different event types.
			Heatmap: Visualize Feedback Scores by Event and Location to identify events with high or low satisfaction.
			Bubble Chart: Plot Ticket Price vs. Attendees, with bubble size representing Sponsorship to analyze the impact of sponsorship on attendance.
14	245229114	Hospital Patient Data: Patient, Admission Date, Discharge Date, Department, Diagnosis, Treatment, Cost, Insurance, Doctor, Medication	Bar Chart: Show Admissions by Department with average stay duration and patient count.
			Line Chart: Track Cost trends over time by Diagnosis, highlighting cost fluctuations.
			Pie Chart: Visualize Diagnosis distribution with Treatment types to understand prevalent diagnoses and treatment types.
			Heatmap: Compare Cost and Treatment by Diagnosis to identify patterns and correlations.
			Scatter Plot: Plot Cost vs. Length of Stay, with color coding by Department, to explore cost versus stay duration.

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S.No	Roll No	Dataset Name & Fields	Visualization Tasks
15	245229115	Bank Transaction Data: Account, Transaction Date, Amount, Transaction Type, Branch, Customer, Category, Fee, Balance, Currency	Line Chart: Show Transaction Trends over time, highlighting Fees and Amounts.
			Bar Chart: Compare Amount by Transaction Type with average amounts displayed.
			Pie Chart: Visualize Transaction distribution by Category to identify major spending areas.
			Heatmap: Display Fee vs. Balance by Branch to find branches with higher fees and balances.
			Scatter Plot: Plot Amount vs. Fee, with bubble size representing Currency, to analyze transaction costs.
16	245229116	Product Review Data: Product, Review, Rating, Reviewer, Date, Category, Location, Purchase Date, Feedback, Response Time	Bar Chart: Compare Ratings by Product with the top reviewers highlighted.
			Line Chart: Track Review trends over time, showing changes in review scores.
			Radar Chart: Visualize Ratings across different Categories to compare product performance in various areas.
			Pie Chart: Display Feedback distribution by type to understand the common feedback received.
			Scatter Plot: Plot Rating vs. Response Time, with size representing Location, to evaluate the responsiveness and rating relationship.

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S.No	Roll No	Dataset Name & Fields	Visualization Tasks
17	245229117	Retail Inventory Data: Item, Quantity, Price, Reorder Point, Supplier, Category, Location, Last Restocked, Cost, Sales	Bar Chart: Compare Stock Level by Item, highlighting critical items with low stock.
			Line Chart: Track Inventory trends over time with Reorder Points marked.
			Pie Chart: Visualize inventory distribution by Category to understand which categories dominate the inventory.
			Scatter Plot: Plot Cost vs. Retail Price, with color coding by Location, to evaluate pricing strategies.
			Stacked Bar Chart: Illustrate Sales and Stock Level by Location, showing how sales performance and stock levels correlate.
18	245229118	Student Grades Data: Student ID, Name, Subject, Grade, Term, Year, Teacher, Class, Attendance, Assignment Scores	Bar Chart: Compare Grades by Subject with the average grade per subject displayed.
			Line Chart: Track Grade trends over Terms to show improvements or declines.
			Pie Chart: Display Grade distribution by Subject to identify subjects with high and low grades.
			Heatmap: Visualize Assignment Scores and Attendance by Student to find correlations.
			Scatter Plot: Plot Grade vs. Assignment Scores, with color coding by Class, to assess the relationship between assignment performance and overall grades.

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S.No	Roll No	Dataset Name & Fields	Visualization Tasks
19	245229119	Customer Purchase History: Customer ID, Purchase Date, Product, Amount Spent, Quantity, Discount, Category, Store, Payment Method, Region	Column Chart: Compare Amount Spent by Product, highlighting high spend categories.
			Line Chart: Track Purchase Trends over time, showing seasonal changes in spending.
			Pie Chart: Visualize Amount Spent distribution by Category to identify popular product categories.
			Heatmap: Show Discount vs. Amount Spent by Store to find patterns in discount effectiveness.
			Bubble Chart: Plot Amount Spent vs. Quantity, with bubble size representing Discount, to analyze spending behavior.
20	245229120	Project Management Data: Project ID, Task, Start Date, End Date, Status, Assigned To, Priority, Budget, Actual Cost, Completion Percentage	Gantt Chart: Visualize Task schedules and milestones for each Project, showing start and end dates.
			Bar Chart: Compare Actual Cost vs. Budget for each Project, highlighting budget overruns.
			Pie Chart: Display Project Status distribution to understand the percentage of completed vs. ongoing projects.
			Line Chart: Track Completion Percentage over time for each Task.
			Heatmap: Show Priority vs. Status by Project to identify tasks with high priority and status.

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S.No	Roll No	Dataset Name & Fields	Visualization Tasks
21	245229121	Website Traffic Data: Date, Page Views, Unique Visitors, Bounce Rate, Session Duration, Traffic Source, Device, Location, Conversion Rate, Goal Completion	Line Chart: Track Page Views and Unique Visitors trends over Date.
			Column Chart: Compare Bounce Rate by Traffic Source to analyze traffic quality.
			Pie Chart: Visualize Traffic Source distribution to understand where visitors come from.
			Scatter Plot: Plot Session Duration vs. Conversion Rate, with size representing Page Views, to assess engagement.
			Heatmap: Show Goal Completion by Location and Device to identify high-performing regions and devices.
22	245229122	Manufacturing Production Data: Product, Production Date, Quantity Produced, Defects, Machine, Shift, Operator, Cost, Time, Location	Bar Chart: Compare Quantity Produced by Product with average defects highlighted.
			Line Chart: Track Production trends over Shifts to analyze productivity.
			Pie Chart: Display Defects distribution by Machine to identify high-defect machines.
			Heatmap: Show Cost vs. Quantity Produced by Location to find cost-effective production areas.
			Scatter Plot: Plot Defects vs. Quantity Produced, with color coding by Machine, to explore defect rates.

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S.No	Roll No	Dataset Name & Fields	Visualization Tasks
23	245229123	Online User Behavior Data: User ID, Session ID, Page, Time Spent, Device, Browser, Location, Date, Action, Conversion	Line Chart: Track Time Spent per Page over Date to identify pages with high or low engagement.
			Bar Chart: Compare Conversion Rate by Device to analyze device performance.
			Pie Chart: Visualize Page distribution to understand the most visited pages.
			Heatmap: Show Time Spent vs. Action by Location to identify user behavior patterns.
			Scatter Plot: Plot Time Spent vs. Conversion, with color coding by Browser, to evaluate conversion efficiency.
24	245229124	Supply Chain Data: Supplier, Order Date, Delivery Date, Product, Quantity, Cost, Warehouse, Transport Mode, Lead Time, Stock Level	Bar Chart: Compare Quantity Ordered by Product, with Cost per unit displayed.
			Line Chart: Track Lead Time trends over time to assess delivery performance.
			Pie Chart: Display Stock Level distribution by Product to understand inventory status.
			Heatmap: Show Cost vs. Quantity by Warehouse to identify cost and stock level patterns.
			Scatter Plot: Plot Cost vs. Lead Time, with bubble size representing Quantity, to analyze cost and delivery efficiency.

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S.No	Roll No	Dataset Name & Fields	Visualization Tasks
25	245229125	Real Estate Market Data: Property ID, Location, Price, Size, Bedrooms, Bathrooms, Year Built, Type, Sale Date, Agent	Column Chart: Compare Price by Property Type, with average size and number of bedrooms displayed.
			Line Chart: Track Price Trends over time by Location, highlighting market fluctuations.
			Pie Chart: Visualize Property Type distribution to understand market composition.
			Heatmap: Show Price vs. Size by Location to identify pricing trends and property sizes.
			Scatter Plot: Plot Price vs. Bedrooms, with bubble size representing Size, to assess property pricing and features.
26	245229126	Healthcare Patient Data: Patient ID, Age, Gender, Diagnosis, Treatment, Visit Date, Doctor, Medication, Insurance, Cost	Bar Chart: Compare Diagnosis frequency with average Cost and Treatment displayed.
			Line Chart: Track Cost trends over time by Diagnosis, showing treatment cost patterns.
			Pie Chart: Visualize Gender distribution to understand patient demographics.
			Heatmap: Show Cost vs. Treatment by Diagnosis to identify cost-effectiveness and treatment patterns.
			Scatter Plot: Plot Age vs. Cost, with color coding by Diagnosis, to analyze age-related treatment costs.

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S.No	Roll No	Dataset Name & Fields	Visualization Tasks
27	245229127	Marketing Campaign Data: Campaign, Start Date, End Date, Budget, Spend, Impressions, Clicks, Conversions, CTR, ROI	Line Chart: Track Spend and Impressions over Campaign duration, highlighting budget usage.
			Bar Chart: Compare Conversions by Campaign, showing effectiveness of each campaign.
			Pie Chart: Visualize Budget distribution by Campaign to understand resource allocation.
			Heatmap: Show CTR vs. ROI by Campaign to evaluate campaign performance.
			Scatter Plot: Plot Spend vs. Conversions, with bubble size representing Impressions, to analyze return on investment.
28	245229128	Education Enrollment Data: Student ID, Course, Enrollment Date, Completion Date, Grade, Instructor, Department, Semester, Fee, Scholarship	Bar Chart: Compare Enrollment by Course with average Grade and Fee shown.
			Line Chart: Track Enrollment trends over Semesters, highlighting peak enrollment periods.
			Pie Chart: Visualize Fee distribution by Course to understand fee structures.
			Heatmap: Show Grade vs. Course by Department to identify performance trends.
			Scatter Plot: Plot Fee vs. Grade, with color coding by Scholarship, to analyze the impact of fees and scholarships on grades.

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S.No	Roll No	Dataset Name & Fields	Visualization Tasks
29	245229129	Telecommunications Data: Customer ID, Plan, Usage, Bill Amount, Contract Length, Date, Service Issues, Device, Region, Payment Method	Bar Chart: Compare Bill Amount by Plan with average Usage and Contract Length displayed.
			Line Chart: Track Usage trends over time, showing changes in customer usage patterns.
			Pie Chart: Visualize Service Issues distribution by Region to identify problem areas.
			Heatmap: Show Bill Amount vs. Usage by Plan to analyze billing efficiency.
			Scatter Plot: Plot Bill Amount vs. Contract Length, with bubble size representing Service Issues, to evaluate billing and contract performance.
30	245229130	Energy Consumption Data: Building, Date, Electricity, Gas, Water, Energy Source, Usage, Cost, Weather, Energy Efficiency	Line Chart: Track Energy Usage for Electricity, Gas, and Water over time to monitor consumption trends.
			Bar Chart: Compare Cost by Energy Source, with average Usage displayed.
			Pie Chart: Visualize Energy Source distribution to understand energy mix.
			Heatmap: Show Energy Efficiency vs. Weather by Building to find patterns in energy efficiency.
			Scatter Plot: Plot Cost vs. Usage, with bubble size representing Energy Efficiency, to analyze cost versus usage efficiency.

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S.No	Roll No	Dataset Name & Fields	Visualization Tasks
31	245229131	Customer Feedback Data: Feedback ID, Customer ID, Date, Product, Rating, Comment, Category, Support Ticket, Resolution Time, Follow-up	Bar Chart: Compare Rating by Product, highlighting the average rating and customer comments.
			Line Chart: Track Resolution Time trends over time, showing changes in support efficiency.
			Pie Chart: Visualize Feedback Category distribution to understand common issues.
			Heatmap: Show Rating vs. Resolution Time by Category to identify patterns in customer satisfaction and support efficiency.
			Scatter Plot: Plot Rating vs. Resolution Time, with color coding by Product, to assess feedback quality and resolution efficiency.
32	245229132	Sales Data: Order ID, Product, Quantity Sold, Sale Date, Revenue, Region, Salesperson, Discount, Customer, Payment Method	Column Chart: Compare Revenue by Product, with Quantity Sold and Discount shown.
			Line Chart: Track Sales trends over Sale Date to monitor performance fluctuations.
			Pie Chart: Visualize Revenue distribution by Region to understand regional performance.
			Heatmap: Show Revenue vs. Quantity Sold by Salesperson to identify top performers.
			Bubble Chart: Plot Revenue vs. Quantity Sold, with bubble size representing Discount, to analyze sales dynamics.

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S.No	Roll No	Dataset Name & Fields	Visualization Tasks
33	245229133	Employee Performance Data: Employee ID, Name, Department, KPI, Target, Achievement, Review Date, Rating, Promotion, Training Hours	Bar Chart: Compare Achievement by KPI, with Rating and Promotion status shown.
			Line Chart: Track Performance trends over time by Department, showing changes in KPI achievements.
			Pie Chart: Visualize Promotion distribution by Department to understand career progression.
			Heatmap: Show Rating vs. Training Hours by Department to find patterns in training effectiveness.
			Scatter Plot: Plot Achievement vs. Training Hours, with color coding by KPI, to evaluate training impact on performance.
34	245229134	Travel Itinerary Data: Booking ID, Destination, Departure Date, Return Date, Traveler, Cost, Airline, Accommodation, Travel Mode, Trip Purpose	Bar Chart: Compare Cost by Destination, with average Duration and Travel Mode displayed.
			Line Chart: Track Booking Trends over time, highlighting peak travel periods.
			Pie Chart: Visualize Cost distribution by Trip Purpose to understand spending patterns.
			Heatmap: Show Cost vs. Accommodation by Destination to identify cost-effective options.
			Bubble Chart: Plot Cost vs. Duration, with bubble size representing Trip Purpose, to analyze travel expenses.

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S.No	Roll No	Dataset Name & Fields	Visualization Tasks
35	245229135	Fitness Tracker Data: User ID, Date, Steps, Calories Burned, Heart Rate, Workout Type, Duration, Sleep Hours, Hydration, Goal Achievement	Line Chart: Track Steps and Calories Burned over time to monitor fitness progress.
			Bar Chart: Compare Workout Type by Duration, with average Heart Rate displayed.
			Pie Chart: Visualize Goal Achievement distribution to assess overall fitness goals.
			Heatmap: Show Sleep Hours vs. Calories Burned by Workout Type to identify patterns in fitness routines.
			Scatter Plot: Plot Steps vs. Calories Burned, with bubble size representing Duration, to analyze fitness activity.
36	245229136	Bookstore Inventory Data: Book ID, Title, Author, Genre, Price, Stock, Publication Date, Publisher, Sales, Rating	Bar Chart: Compare Stock by Genre, with Sales and Price shown.
			Line Chart: Track Sales trends over time, highlighting peak sales periods.
			Pie Chart: Visualize Genre distribution to understand popular book genres.
			Heatmap: Show Price vs. Stock by Genre to identify pricing and stock level patterns.
			Scatter Plot: Plot Sales vs. Price, with color coding by Genre, to analyze sales performance across different price ranges.

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S.No	Roll No	Dataset Name & Fields	Visualization Tasks
37	245229137	Restaurant Sales Data: Order ID, Menu Item, Quantity Sold, Sale Date, Revenue, Table, Waitstaff, Customer Feedback, Discount, Payment Method	Column Chart: Compare Revenue by Menu Item, with Quantity Sold and Customer Feedback displayed.
			Line Chart: Track Sales trends over Sale Date, showing changes in revenue over time.
			Pie Chart: Visualize Revenue distribution by Menu Item to identify popular dishes.
			Heatmap: Show Revenue vs. Quantity Sold by Table to find high-performing tables.
			Bubble Chart: Plot Revenue vs. Quantity Sold, with bubble size representing Discount, to analyze sales dynamics.
38	245229138	IT System Performance Data: System ID, Date, Uptime, Downtime, Error Rate, Response Time, User Load, Maintenance, Incident, Patch Version	Line Chart: Track Uptime and Downtime trends over time to monitor system reliability.
			Bar Chart: Compare Error Rate by System ID, with Response Time and User Load displayed.
			Pie Chart: Visualize Incident distribution by System ID to identify common issues.
			Heatmap: Show Response Time vs. User Load by Patch Version to find patterns in system performance.
			Scatter Plot: Plot Error Rate vs. Response Time, with color coding by Maintenance, to analyze system performance and reliability.

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P24DS103-Essential Statistics with R for Data Science

Class: I M.Sc Data Science

Semester: I

S.No	Roll No	Dataset Name & Fields	Visualization Tasks
39	245229139	Sports Team Statistics: Player ID, Name, Position, Games Played, Goals, Assists, Minutes Played, Team, Season, Injuries	Bar Chart: Compare Goals by Player, with Games Played and Minutes Played displayed.
			Line Chart: Track Goals and Assists over Season, showing performance trends.
			Pie Chart: Visualize Position distribution to understand player roles.
			Heatmap: Show Minutes Played vs. Goals by Team to identify high-performance players.
			Scatter Plot: Plot Goals vs. Minutes Played, with color coding by Injuries, to analyze performance efficiency.
40	245229140	E-commerce Order Data: Order ID, Product, Quantity, Order Date, Total Price, Customer, Region, Payment Method, Discount, Shipping Time	Column Chart: Compare Total Price by Product, with Quantity and Discount shown.
			Line Chart: Track Order Trends over time, highlighting peak order periods.
			Pie Chart: Visualize Payment Method distribution to understand payment preferences.
			Heatmap: Show Shipping Time vs. Total Price by Region to find shipping and pricing patterns.
			Bubble Chart: Plot Total Price vs. Quantity, with bubble size representing Discount, to analyze sales dynamics.

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S.No	Roll No	Dataset Name & Fields	Visualization Tasks
41	245229141	Transportation Data: Vehicle ID, Route, Date, Passenger Count, Revenue, Fuel Usage, Maintenance, Driver, Trip Duration, Service Issues	Bar Chart: Compare Passenger Count by Route, with Revenue and Fuel Usage displayed.
			Line Chart: Track Revenue and Fuel Usage over time, showing operational cost trends.
			Pie Chart: Visualize Service Issues distribution by Route to identify problem areas.
			Heatmap: Show Fuel Usage vs. Passenger Count by Vehicle ID to find patterns in efficiency.
			Bubble Chart: Plot Revenue vs. Trip Duration, with bubble size representing Service Issues, to analyze operational performance.
42	245229142	Customer Purchase History: Transaction ID, Customer ID, Product, Purchase Date, Quantity, Price, Discount, Total, Payment Method, Store Location	Column Chart: Compare Total sales by Product, with Quantity and Discount shown.
			Line Chart: Track Sales Trends over Purchase Date, highlighting fluctuations.
			Pie Chart: Visualize Payment Method distribution to understand payment preferences.
			Heatmap: Show Total vs. Quantity by Store Location to identify sales performance across locations.
			Scatter Plot: Plot Total vs. Quantity, with color coding by Discount, to analyze the effect of discounts on sales.

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S.No	Roll No	Dataset Name & Fields	Visualization Tasks
43	245229143	Hotel Booking Data: Booking ID, Customer ID, Check-in Date, Check-out Date, Room Type, Number of Guests, Total Cost, Payment Method, Booking Channel, Season	Bar Chart: Compare Total Cost by Room Type, with average Number of Guests and Booking Channel displayed.
			Line Chart: Track Booking Trends over Check-in Date, highlighting peak seasons.
			Pie Chart: Visualize Booking Channel distribution to understand booking preferences.
			Heatmap: Show Total Cost vs. Number of Guests by Room Type to identify pricing and booking patterns.
			Bubble Chart: Plot Total Cost vs. Number of Guests, with bubble size representing Season, to analyze cost dynamics across seasons.
44	245229144	Financial Transactions Data: Transaction ID, Account Number, Transaction Date, Amount, Transaction Type, Category, Location, Merchant, Balance, Fee	Column Chart: Compare Amount by Transaction Type, with Balance and Fee shown.
			Line Chart: Track Transaction Trends over Transaction Date, showing changes in transaction volumes.
			Pie Chart: Visualize Category distribution to understand spending patterns.
			Heatmap: Show Amount vs. Fee by Transaction Type to identify transaction cost patterns.
			Scatter Plot: Plot Amount vs. Balance, with color coding by Category, to analyze spending and balance impact.

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S.No	Roll No	Dataset Name & Fields	Visualization Tasks
45	245229145	Employee Training Data: Employee ID, Training Session, Date, Duration, Trainer, Department, Training Type, Cost, Attendance, Evaluation Score	Bar Chart: Compare Cost by Training Type, with Duration and Attendance displayed.
			Line Chart: Track Training Trends over Date, showing changes in training activities.
			Pie Chart: Visualize Department distribution to understand training allocation.
			Heatmap: Show Evaluation Score vs. Duration by Training Type to identify training effectiveness.
			Scatter Plot: Plot Cost vs. Attendance, with color coding by Evaluation Score, to analyze the relationship between cost and training outcomes.
46	245229146	Customer Service Data: Ticket ID, Customer ID, Issue Date, Resolution Date, Issue Type, Priority, Resolution Time, Support Agent, Feedback, Status	Bar Chart: Compare Resolution Time by Issue Type, with Priority and Feedback shown.
			Line Chart: Track Resolution Trends over Issue Date, highlighting changes in resolution efficiency.
			Pie Chart: Visualize Issue Type distribution to understand common issues.
			Heatmap: Show Resolution Time vs. Priority by Support Agent to identify support performance.
			Scatter Plot: Plot Resolution Time vs. Feedback, with color coding by Issue Type, to analyze issue resolution quality.

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S.No	Roll No	Dataset Name & Fields	Visualization Tasks
47	245229147	Employee Attendance Data: Employee ID, Date, Hours Worked, Absences, Overtime, Department, Shift, Leave Type, Reason, Manager	Column Chart: Compare Hours Worked by Department, with Overtime and Absences displayed.
			Line Chart: Track Hours Worked and Absences over time, highlighting attendance patterns.
			Pie Chart: Visualize Leave Type distribution to understand leave patterns.
			Heatmap: Show Hours Worked vs. Absences by Shift to identify attendance issues.
			Bubble Chart: Plot Overtime vs. Hours Worked, with bubble size representing Absences, to analyze overtime and attendance relationships.
48	245229148	Production Line Data: Machine ID, Production Date, Product, Quantity Produced, Defects, Downtime, Operator, Shift, Maintenance, Production Rate	Bar Chart: Compare Quantity Produced by Product, with Defects and Downtime shown.
			Line Chart: Track Production Rate over Production Date, highlighting efficiency changes.
			Pie Chart: Visualize Defects distribution by Product to understand defect patterns.
			Heatmap: Show Production Rate vs. Defects by Machine ID to identify performance and quality issues.
			Scatter Plot: Plot Quantity Produced vs. Downtime, with color coding by Operator, to analyze production efficiency.

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S.No	Roll No	Dataset Name & Fields	Visualization Tasks
49	245229149	Inventory Data: Item ID, Item Name, Category, Quantity, Price, Supplier, Stock Date, Warehouse, Reorder Level, Expiration Date	Bar Chart: Compare Quantity by Category, with Price and Reorder Level shown.
			Line Chart: Track Stock Levels over time to monitor inventory changes.
			Pie Chart: Visualize Category distribution to understand inventory composition.
			Heatmap: Show Price vs. Quantity by Warehouse to identify pricing and stock patterns.
			Scatter Plot: Plot Quantity vs. Price, with bubble size representing Reorder Level, to analyze inventory and pricing dynamics.
50	245229150	Website Analytics Data: Page, Date, Visitors, Page Views, Bounce Rate, Session Duration, Source, Device, Conversion Rate, Geography	Bar Chart: Compare Page Views by Page, with Visitors and Bounce Rate shown.
			Line Chart: Track Session Duration trends over time by Page, highlighting engagement changes.
			Pie Chart: Visualize Source distribution to understand traffic sources.
			Heatmap: Show Bounce Rate vs. Page Views by Device to identify performance across devices.
			Scatter Plot: Plot Conversion Rate vs. Session Duration, with color coding by Geography, to analyze engagement effectiveness.

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S.No	Roll No	Dataset Name & Fields	Visualization Tasks
51	245229151	Subscription Data: Subscriber ID, Subscription Date, Plan, Monthly Fee, Usage, Renewal Date, Cancellation Date, Customer Support, Region, Contract Type	Column Chart: Compare Monthly Fee by Plan, with Usage and Cancellation Date shown.
			Line Chart: Track Renewal Trends over time, highlighting renewal patterns.
			Pie Chart: Visualize Region distribution to understand subscriber locations.
			Heatmap: Show Usage vs. Monthly Fee by Plan to identify subscription usage and cost patterns.
			Scatter Plot: Plot Usage vs. Monthly Fee, with color coding by Contract Type, to analyze usage versus cost effectiveness.
52	245229152	Event Management Data: Event ID, Event Name, Date, Location, Attendance, Revenue, Expenses, Organizer, Ticket Type, Sponsorship	Bar Chart: Compare Revenue by Event Name, with Attendance and Expenses displayed.
			Line Chart: Track Attendance trends over Date, showing changes in event popularity.
			Pie Chart: Visualize Ticket Type distribution to understand ticket sales.
			Heatmap: Show Revenue vs. Expenses by Location to identify profitable locations.
			Bubble Chart: Plot Revenue vs. Attendance, with bubble size representing Sponsorship, to analyze event success.

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S.No	Roll No	Dataset Name & Fields	Visualization Tasks
53	245229153	Academic Performance Data: Student ID, Name, Subject, Grade, Semester, Teacher, Credits, Attendance, Assignments, Extracurriculars	Column Chart: Compare Grade by Subject, with Credits and Attendance shown.
			Line Chart: Track Grade trends over Semester, showing performance changes.
			Pie Chart: Visualize Extracurriculars distribution to understand participation levels.
			Heatmap: Show Grade vs. Attendance by Subject to identify performance and attendance patterns.
			Scatter Plot: Plot Grade vs. Assignments, with color coding by Subject, to analyze the impact of assignments on grades.
54	245229154	Real Estate Data: Property ID, Location, Type, Price, Size, Bedrooms, Bathrooms, Listing Date, Agent, Status	Bar Chart: Compare Price by Type, with Size and Bedrooms displayed.
			Line Chart: Track Price trends over Listing Date, highlighting market changes.
			Pie Chart: Visualize Property Status distribution to understand market status.
			Heatmap: Show Price vs. Size by Location to identify price trends by location.
			Scatter Plot: Plot Price vs. Size, with bubble size representing Bedrooms, to analyze property values.

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S.No	Roll No	Dataset Name & Fields	Visualization Tasks
55	245229155	Healthcare Data: Patient ID, Visit Date, Diagnosis, Treatment, Medication, Cost, Doctor, Hospital, Duration, Follow-up	Column Chart: Compare Cost by Diagnosis, with Treatment and Medication shown.
			Line Chart: Track Visit Trends over Visit Date, showing changes in patient visits.
			Pie Chart: Visualize Diagnosis distribution to understand common conditions.
			Heatmap: Show Cost vs. Duration by Doctor to identify cost and treatment patterns.
			Scatter Plot: Plot Cost vs. Duration, with color coding by Hospital, to analyze healthcare expenses and treatment efficiency.
56	245229156	Media Consumption Data: User ID, Date, Media Type, Duration, Genre, Device, Location, Subscription, Ratings, Content	Bar Chart: Compare Duration by Media Type, with Ratings and Genre shown.
			Line Chart: Track Media Consumption trends over Date, highlighting usage patterns.
			Pie Chart: Visualize Media Type distribution to understand media preferences.
			Heatmap: Show Duration vs. Ratings by Device to identify media engagement patterns.
			Scatter Plot: Plot Duration vs. Ratings, with color coding by Genre, to analyze content popularity.

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S.No	Roll No	Dataset Name & Fields	Visualization Tasks
57	245229157	Manufacturing Data: Machine ID, Production Date, Product, Units Produced, Downtime, Operator, Shift, Defects, Maintenance, Output Rate	Column Chart: Compare Units Produced by Product, with Downtime and Defects displayed.
			Line Chart: Track Output Rate trends over Production Date, showing efficiency changes.
			Pie Chart: Visualize Defects distribution by Product to understand quality issues.
			Heatmap: Show Output Rate vs. Defects by Machine ID to identify performance patterns.
			Bubble Chart: Plot Units Produced vs. Downtime, with bubble size representing Defects, to analyze manufacturing efficiency.