



AiNS Computer Institute

DATA ANALYST

"Unlocking Insights, Empowering Decisions: The Power of Data Analysis."

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AiNS



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ainscomputerinstitute.com



DATA ANALYST

Data analysis is the process of inspecting, cleaning, transforming, and modeling data with the goal of discovering useful information, informing conclusions, and supporting decision-making. It involves various techniques and methods to uncover patterns, trends, correlations, and insights within datasets, ultimately leading to actionable insights and informed strategies.

Data analysis can be performed through different approaches, including descriptive, exploratory, inferential, and predictive analysis. Descriptive analysis focuses on summarizing and describing the characteristics of a dataset, such as mean, median, mode, and standard deviation. Exploratory analysis involves exploring data to discover patterns or relationships using visualizations and statistical techniques. Inferential analysis aims to make inferences or predictions about a population based on a sample of data using statistical hypothesis testing and confidence intervals. Predictive analysis utilizes statistical algorithms and machine learning techniques to make predictions or forecasts based on historical data.

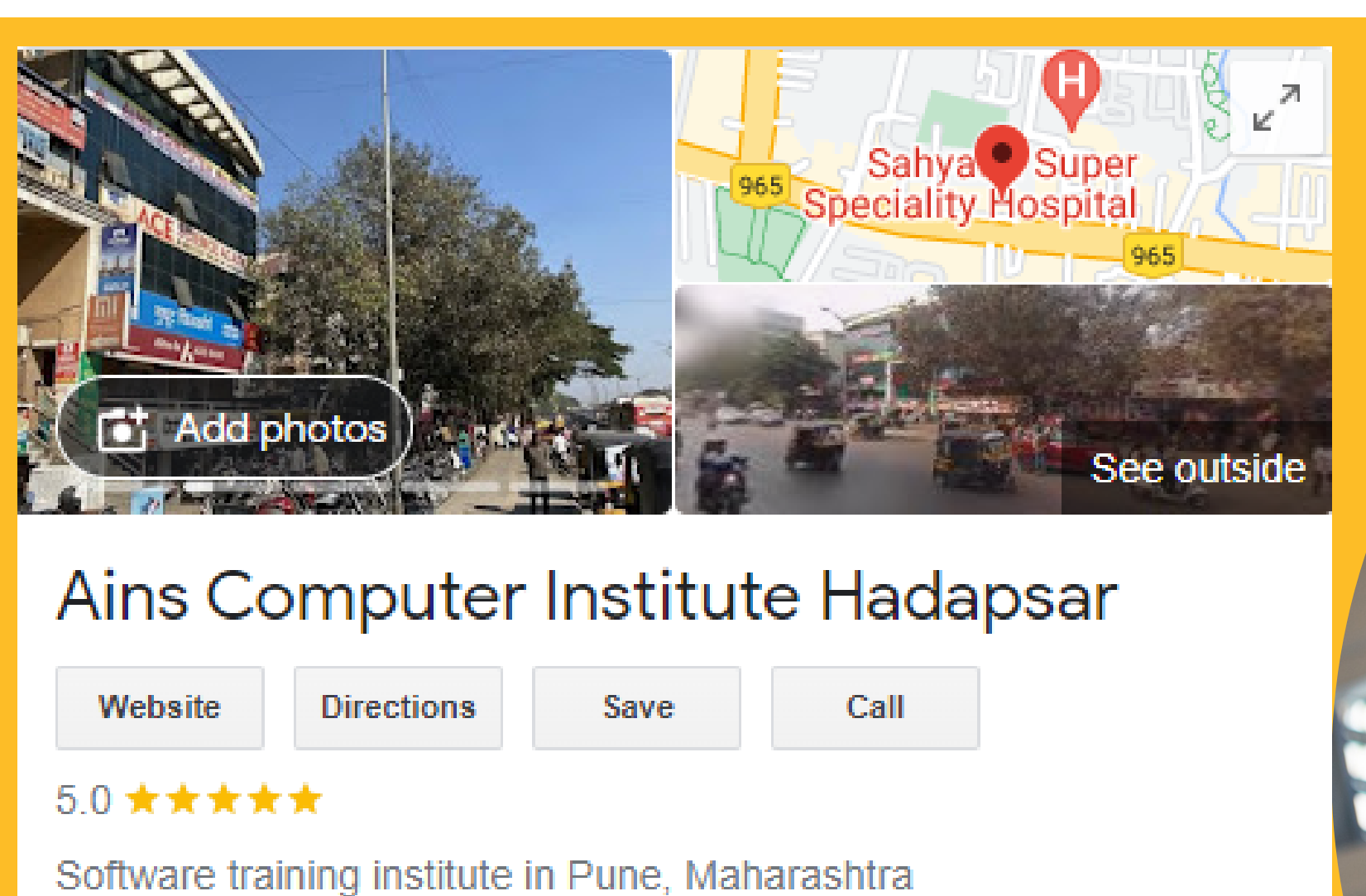
Data analysis is crucial in various fields and industries, including business, finance, healthcare, marketing, and science. It helps organizations gain insights into customer behavior, optimize processes, identify opportunities, mitigate risks, and drive informed decision-making. With the increasing volume and complexity of data generated in today's digital age, effective data analysis plays a vital role in extracting valuable insights and staying competitive in the marketplace.



WHY AiNS?

At AINS Computer Institute, our faculty members who specialize in teaching data analysis are not only highly skilled professionals but also dedicated educators who deeply appreciate the importance of this field in today's digital landscape. Their passion for data analysis is evident in their commitment to providing students with comprehensive and practical knowledge, ensuring that they are equipped with the skills needed to excel in this dynamic field.

Moreover, at AiNS, quality is at the forefront of everything we do. From our curriculum to our teaching methodologies, we uphold the highest standards to ensure that our students receive a top-notch education. Our faculty members, with their expertise and enthusiasm, embody this commitment to quality, creating an engaging and supportive learning environment where students can thrive and become proficient data analysts ready to make a meaningful impact in the industry.



BENEFITS at AiNS

- 1 **Expert Faculty**
- 2 **Industry-Relevant Curriculum**
- 3 **Career Guidance & Opportunities**
- 4 **Recognized ISO Certification**
- 5 **Real-World Data Analysis Projects**
- 6 **Access to Premium Tools and Datasets**
- 7 **Get Interview Ready & Resume Building**
- 8 **100% Job Assistance**



Certificate of Completion

This Certificate is presented to Sarrah Khan for successfully completing

his/her course in Data Analytics by securing 95%

We wish him/her success in life.

(This percentage is based on student's online examination)

Nasir
Hassan
Khan


Digitally signed by
Nasir Hassan Khan
Date: 2024.03.03
18:09:30 +05'30'

AUTHORISED SIGNATORY
DIRECTOR



OUR CERTIFICATION:

ISO course certification offers several advantages:

1. **International Recognition:** ISO certifications are globally recognized, demonstrating compliance with international standards and best practices.
2. **Enhanced Credibility:** Certification enhances the credibility and reputation of the organization, instilling confidence in customers, stakeholders, and partners.
3. **Improved Efficiency:** ISO standards often focus on improving processes, leading to increased efficiency, reduced waste, and cost savings.
4. **Market Access:** Certification can provide easier access to new markets, as many contracts and tenders require ISO certification as a prerequisite.
5. **Risk Management:** ISO standards help identify and mitigate risks, ensuring better management of potential threats to the organization.
6. **Customer Satisfaction:** Compliance with ISO standards often leads to higher customer satisfaction due to improved quality and consistency of products or services.
7. **Competitive Advantage:** Certification can give a competitive edge by demonstrating commitment to quality, safety, and environmental responsibility.
8. **Legal Compliance:** ISO standards often align with legal requirements, ensuring compliance and reducing the risk of penalties or legal issues.
9. **Continuous Improvement:** ISO certification encourages a culture of continuous improvement, leading to ongoing refinement of processes and performance.
10. **Employee Morale:** Employees often take pride in working for a certified organization, leading to increased morale and motivation.

value

adding

DEMAND:

In India:

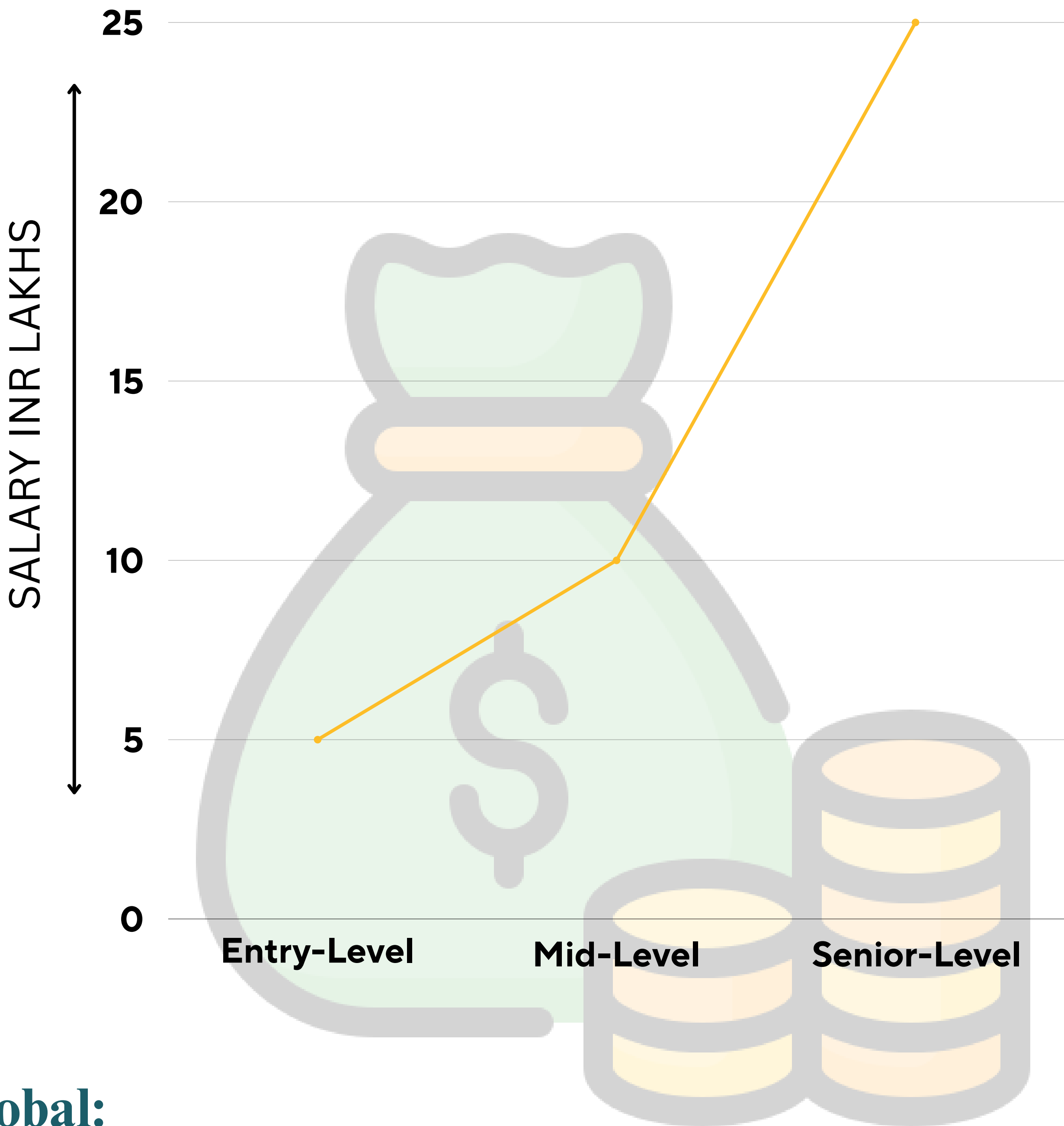
The demand for data analysts has been fueled by the rapid digitization of various industries, including finance, e-commerce, healthcare, telecommunications, and more. With the increasing volume of data generated by these sectors, there is a growing need for skilled professionals who can analyze and derive insights from this data to drive business decisions, improve operational efficiency, and enhance customer experiences. Additionally, initiatives such as Digital India and the government's focus on data-driven governance have further contributed to the demand for data analysts across various sectors.

Globally:

the demand for data analysts is also robust, driven by the increasing adoption of data-driven decision-making across industries worldwide. Companies are recognizing the value of data analytics in gaining competitive advantages, optimizing processes, and identifying new business opportunities. This demand is particularly high in sectors such as technology, finance, healthcare, retail, and consulting, where data analytics plays a critical role in driving innovation and business growth.



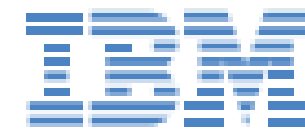
SALARY IN INDIA:



Global:

- **Entry-Level: \$50,000 - \$70,000 per annum**
- **Mid-Level: \$70,000 - \$100,000 per annum**
- **Senior-Level: \$100,000 - \$150,000+ per annum**

TOP COMPANIES HIRING DATA ANALYST:



and many more...



SYLLABUS CONTENT:



PYTHON



MySQL



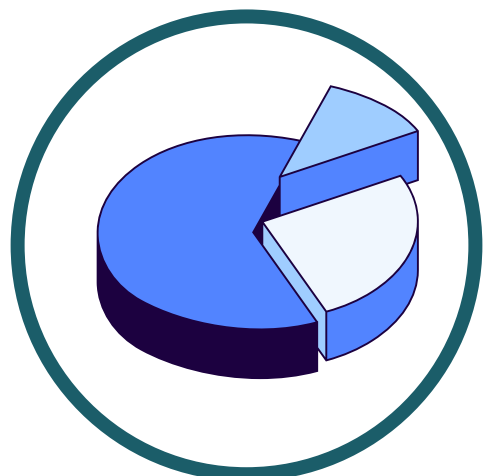
**ADVANCED
EXCEL**



POWER BI



TABLEAU



**PROBABILITY
& STATISTICS**

+ LIVE PROJECTS

ADVANCED-EXCEL

i)	1) Formula & Functions Basics
	<ul style="list-style-type: none">- Difference between Formula & Function- Formula drafting Mechanism without Google or Youtube help in the office- Types of Formula drafting- Formula Typing Methods- General Rules to be followed while you draft any kind of function into the MS – Excel without facing errors.- Formula correction Audit process
ii)	2) Introduction to Function Categories
	<ul style="list-style-type: none">- Financial – EMI- Logical - Comparative Conditions- Text - Editing of the Text- Date and Time - Time and Motion Study- Lookup & Reference – Find out the related information- Mathematical and Trigonometry – Critical Mathematical calculations within few seconds.- Statistical - Statistical calculations- Information – Data Cleaning- Array - multiple ranges and table calculation of text to numbers
iii)	3) Financial Functions -
	<ul style="list-style-type: none">- PMT Function and related Loan EMI, Interest and PV calculation
iv)	Logical Functions -

Comparative Conditions for decision making in business
– IF, AND, OR, AND with OR, NOT, IFNA, TRUE, FALSE,
XOR, SWIFT, IFERROR

v) TEXT Functions -

- **Editing and re construction of the text using –**
UPPER, LOWER, PROPER, TRIM, DOLLAR, REPLACE,
CONCATENATE, SUBSTITUTE, MID, LEN and Flash
Fill Function

vi) Date & Time Functions -

- **HR Automation for Salary Slips, PF Calculation,
Overtime and Appraisal Calculation, Security
Cabin In Out Entries using –**
TODAY, NOW, TEXT, YEARFRAC, DATEDIF,
EOMONTH, DAY, WORKDAY.INTL,
NETWORKDAYS.INTL, CONVERT, Total Hours,
Minute, Seconds and Years, Months and Days
Calculation

vii) Lookup & Reference Functions

- **Finding out the related records of the given value
using –**
VLOOKUP, HLOOKUP, IFERROR, MATCH, CHOOSE,
AREAS, COLUMN, COLUMNS, ROW, ROWS,
REVERSE VLOOKUP, INDEX MATCH, CUBE, SQUARE
ROOT, SQUARE, LOOKUP APP Development,
Double VLOOKUP, Department wise VLOOKUP,
Position wise VLOOKUP, XLOOKUP, 5 Years data
retention Automation project using INDEX Match
combination

viii) Statistical Functions -

- **Critical Statistical Calculations using –**
SUM, AVERAGE, MAX, MIN, MAXA, MINA, COUNT,
COUNTA, LARGE, SMALL, ISODD, ISEVEN, SUMIF,
SUMIFS, COUNTIF, COUNTIFS, AVERAGEIF,
AVERAGEIFS, MINIFS, MAXIFS

ix)	Array Functions -
	<ul style="list-style-type: none">- Calculating multiple data ranges and multiple tables with each other (huge data formulation) – SUMPRODUCT, SUMINDEX Combination
x)	Chart Creation
	<ul style="list-style-type: none">- Creating 4 different types of charts in MS – Excel and doing related analytics –- Column Chart, Bar Chart, Pie Chart and Line Chart
xi)	Pivot Table Automation
	<ul style="list-style-type: none">- Understanding the Analytical use of Pivot table and its benefits using below various Pivot automations –
	<ul style="list-style-type: none">- Date and Time Grouping, Calculated Fields, Pivot Slicers, Pivot Charts, Value Field Setting, Show Value as Tool, Attractive Pivot Table Design, Various Pivot Table Combinations

PYTHON

1.1 Introduction to Python.

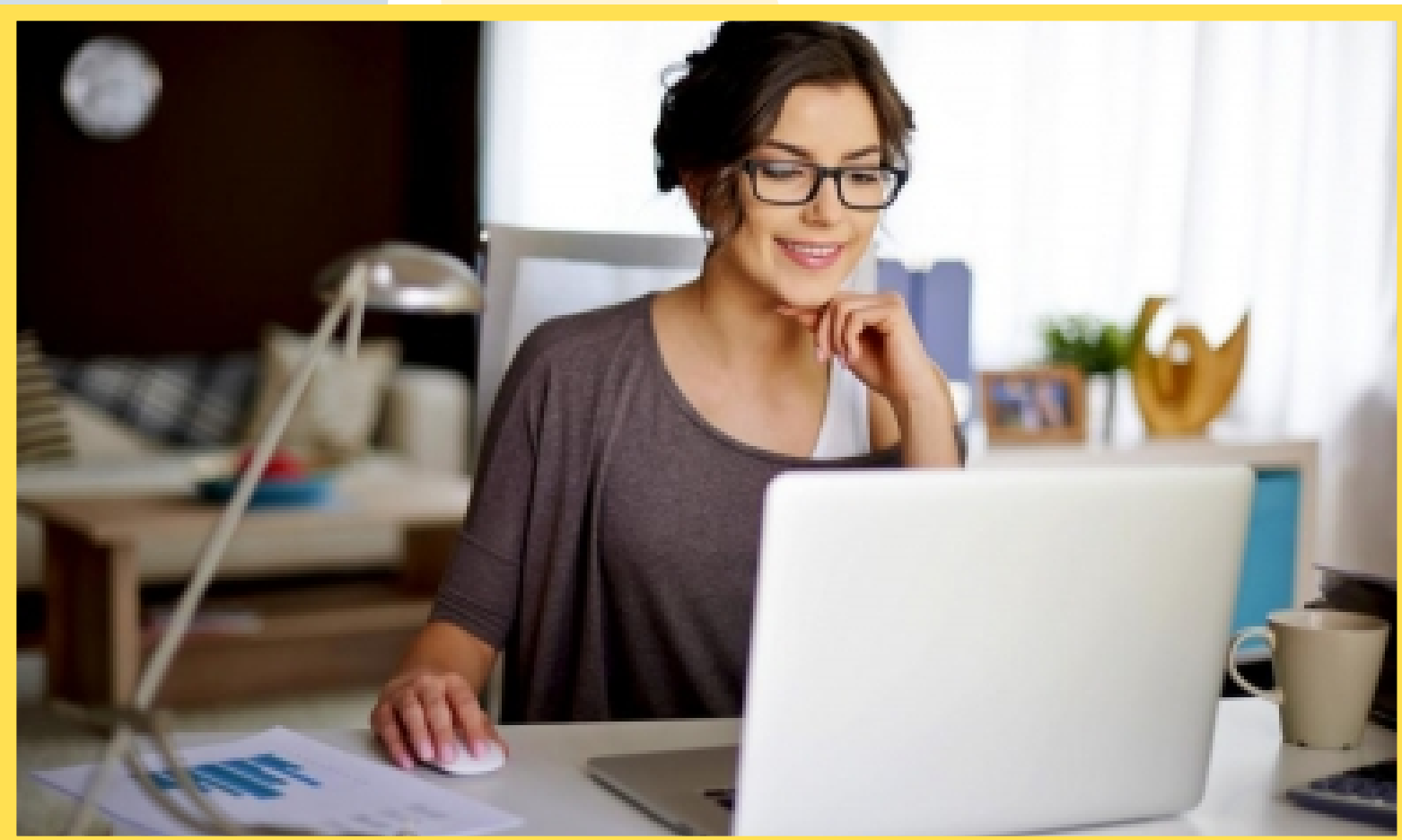
- Installation & Environment settings.
- Introduction to Shell.

1.2 Variables, Keywords, Data types and Identifiers.

- Variables
- Keywords
- Data types
- Identifiers

1.3 String, List, Set, Tuple and Dictionary and Slicing

- String Data types
- List Data types
- Set Data types
- Tuple Data types
- Dictionary Data types
- Slicing



1.4 Operators

- Arithmetic Operators
- Logical Operators
- Relational Operators
- Bitwise operators
- Assignment Operators
- Membership Operators
- Identity Operators

1.5 Control Statements

- Decisional Statements
- Looping Statements
- Break, Continue and Pass



1.6 Input and Print Statements

- Input statements
- Print statements

1.7 Functions or Methods

- Types of Functions
- Recursion
- Arguments
- Packing and unpacking(varargs)

1.8 Oops

- Class, Objects
- Inheritance
- Method Overriding
- Access Specifies

1.9 File Handling and Json

- Flat File Handling
- Json
- Pickle

1.10 Exception Handling

- Try
- Except and final
- Custom Exceptions
- Raising Exceptions
- Assertions

1.11 Comprehension

- List Comprehension

1.12 Decorators

- Method
- Class Level

1.13 Map, Filter and Lambda Expressions

1.14 Iterators and Generators



1.15 Pandas, Numpy, Matplotlib, Seaborn:

Data frame creation, using different methods,
Using Pandas analysis on Universities Salary data
Sets, Visualization using Matplotlib and Seaborn,
Numpy Introduction



MySQL

- Introduction to MySQL
- Introduction to Databases
- Introduction to RDBMS
- Explain RDBMS through normalization
- Different types of RDBMS
- Software Installation (MySQL Workbench)

SQL Commands and Data Types

- Types of SQL Commands (DDL, DML, DQL, DCL, TCL) and their applications
- Data Types in SQL (Numeric, Char, Datetime)

DQL & Operators

- SELECT: LIMIT, DISTINCT, WHERE, AND, OR, IN, NOT IN, BETWEEN, EXIST, ISNULL, IS NOT NULL, Wild Cards, ORDER BY

Case When Then and Handling NULL Values

- Usage of Case When Then to solve logical problems and handling NULL Values (IFNULL, COALESCE)

Group Operations & Aggregate Functions

- Group By, Having clause
- COUNT, SUM, AVG, MIN, MAX, COUNT
- String functions
- Date & Time function

Constraints

- NOT NULL
- UNIQUE
- CHECK
- DEFAULT
- Primary key
- Foreign Key (Both at column level and table level)

Joins

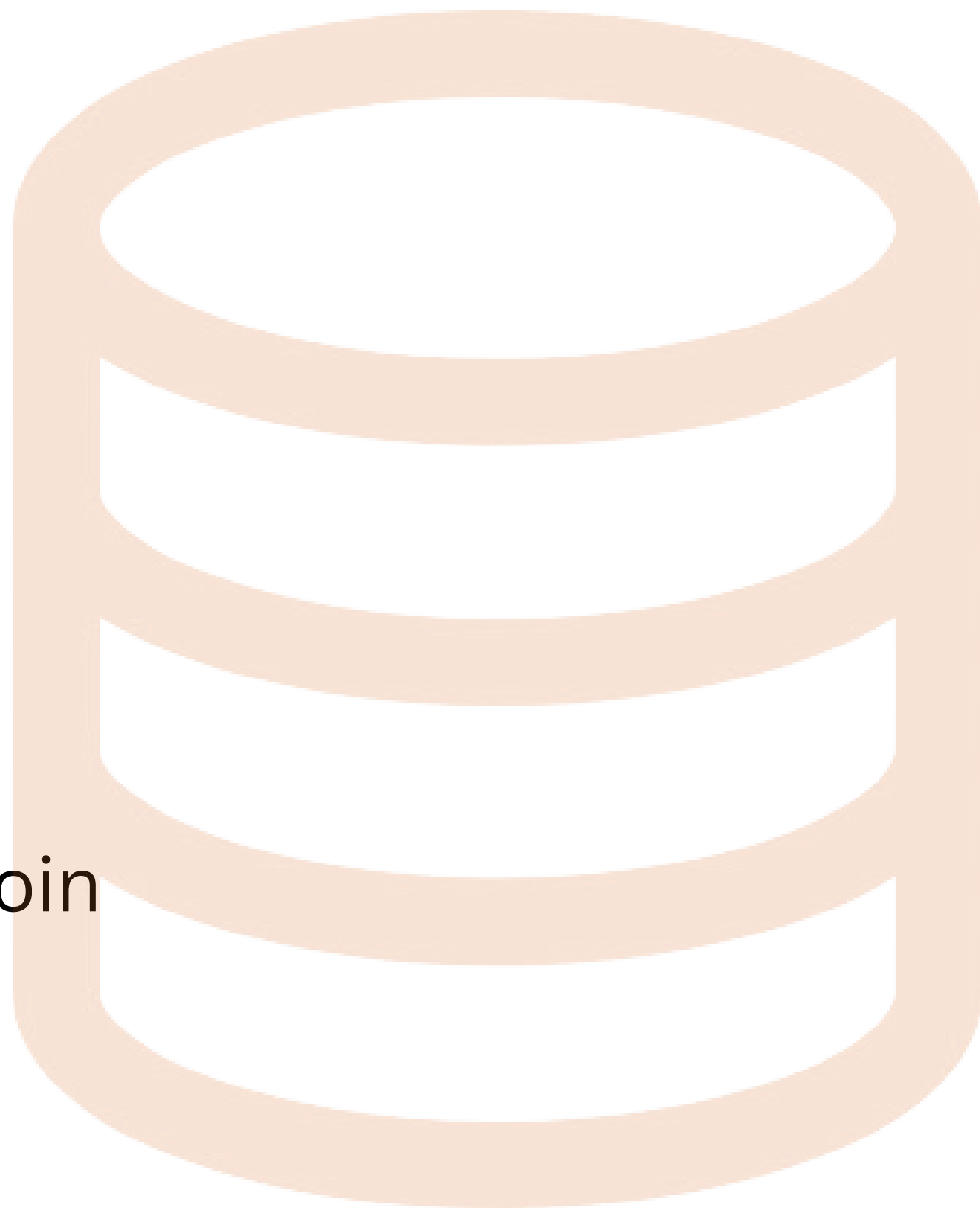
- Inner
- Left
- Right
- Cross
- Self joins
- Full outer join

DDL

- Create
- Drop
- Alter
- Rename
- Truncate
- Modify
- Comment

DML & TCL Commands

- DML: Insert, Update, and Delete
- TCL: Commit, Rollback, Savepoint, and Data Partitioning



Indexes and Views

- Indexes (Different Type of Indexes) and Views in SQL

Stored Procedure

- Procedure with IN Parameter
- Procedure with OUT parameter
- Procedure with INOUT parameter

Function, Constructs

- User Defined Function
- Window Functions - Rank, Dense Rank, Lead, Lag, Row_number

Union, Intersect, Sub-query

- Union
- Union all
- Intersect
- Sub Queries
- Multiple Query

Exception Handling

- Handling exceptions in a query
- CONTINUE Handler
- EXIT handler
- Triggers

Power BI

Power BI Introduction and Installation

- Understanding Power BI Background
- Installation of Power BI and checklist for perfect installation
- Formatting and Setting prerequisites
- Understanding the difference between Power BI desktop & Power Query

The Power BI user interface, including types of data sources and visualizations

- Getting familiar with the interface BI Query & Desktop
- Understanding types of visualization
- Loading data from multiple sources
- Data type and the type of default chart on drag drop
- Geo location map integration

Lab: Load the data from excel file and validating the data types and using default charts

Sample dashboard with Animation Visual

- Financial sample data in Power BI
- Preparing sample dashboard as get started
- Map visual types and usages in different variation
- Understanding scatter Plot chart with Play axis and the parameters.

Lab: Variations of Scatter Chart and Map Chart with conditional formatting and using play axis

Power BI Artificial Intelligence Visual

- Understanding the use of AI in Power BI
- AI analysis in Power BI using chart
- Q&A chat bot and the use in real life
- Hierarchy tree

Lab: Create visuals with the help of AI like Q&A Smart Narrative

Power BI Visualization

- Understanding Column Chart
- Understanding Line Chart
- Implementation of Conditional formatting
- Implementation of Formatting techniques.

Lab: Bar & Column chart differences and Coloring and formatting

Power Query Editor

- Loading data from folder
- Understanding Power Query in detail
- Promote header, Split to limiter, Add columns, append, merge queries, etc.

Lab: Formatting the data and removing unwanted fields

Modelling with Power BI

- Loading multiple data from different format
- Understanding modelling (How to create relationship)
- Connection type, Data cardinality, Filter direction
- Making dashboard using new loaded data

Lab: Creating relationships with different Cardinality with examples

Power Query Editor Filter Data

- Power Query Custom Column & Conditional Column
- Manage Parameter
- Introduction to Filter and types of filter
- Trend analysis, Future forecast

Lab: Power Query Custom Column (M-Code) and Manage Parameter

Customize the data in Power BI

- Understanding tooltip with information
- Use and understanding of Drill Down
- Visual interaction and customisation of visual interaction

Lab: Usage of drill down & tool tip

Customize the data in Power BI

- Drill through function and usage
- Button triggers
- Bookmark and different use and implementation
- Navigation buttons

Lab: How to create Bookmarks and Navigation buttons

Dax Expressions

- Introduction to DAX
- Table Dax, Calculated column, DAX measure and difference
- Eg:- Calendar, Calendar auto, Summarize, Group by, etc.
- Calculated Column
- Related, Lookup value, switch, Datedif, Rankx, Date functions
- Dax Measure and Quick Measure
- Remove filters, Keep filters, All, Allselected, Time Intelligence Functions, Rolling average, YoY,
- Running total

Lab: Revision of the Table dax formulas

Revision of the Calculated Columns formulas

Revision of the Calculated Dax formulas

Custom Visual

- Custom visual and understanding the use of custom
- Loading custom visual, Pinning visual
- Loading to template for future use
- Publishing Power Bi

Lab: Creating Visualization and Publishing Power BI Service

Power BI Service

- Introduction to app.powerbi.com
- Schedule refresh
- Data flow and use power bi from online
- Download data as live in Powerpoint and more.

Lab: Complete Power BI Online Services

PROBABILITY & STATISTICS

1) INTRODUCTION: ·Why do we need?

- Descriptive Statistics
- Central Tendency (Mean/Median/Mode)
- Deviation (Standard Deviation/Variance)
- Population & Sample
- Distributions
- Need for Distribution

2) DISTRIBUTION & VARIOUS TESTS:

- Random Variable?
- Discrete & Continuous Random Variable
- Normal Distribution/Gaussian Distribution
- PDF & CDF of Gaussian distribution
- Uniform Distribution
- Q-Q Test
- K-S Test
- What is Sampling?
- Types of Sampling

3) INFERENCE STATISTICS

- Correlation Vs Causation
- Hypothesis Testing
- Confidence Interval
- Permutation Resampling Test
- A/B Testing

4) CASE STUDIES/PROJECTS

- Case Study-1
- Case Study-2

Tableau

- Introduction to Data

Visualization

- Tableau – Data Visualization

Tool

- Tableau User Interface

- Basic Chart types

- Intermediate Chart

- Advanced Charts

- Maps in Tableau

- Adding Background Image

- Data Connectivity in-depth

understanding

- Creating Calculated Fields

- Responsive Tool Tips

- Connecting Tableau with

Tableau Server

- Connecting Tableau with R