

**WEST BENGAL COUNCIL OF HIGHER SECONDARY EDUCATION
SYLLABUS FOR CLASSES XI AND XII**

**SUBJECT : MODERN COMPUTER APPLICATION
(COMA)**

COMA

Course Overview:

This course covers the fundamental concepts of computer system organization, programming, efficient mechanism for storing and retrieving data on main memory, data management and visualization techniques, computer networks along with HTML page designing, the value of technology in societies, e-commerce, database management system, artificial intelligence, and data warehouse and data mining technique for the students from all academic backgrounds.

Course Objective:

This course enables students to-

- develop an understanding of how computer system works; the components of computer systems and how they interrelate, including software, data, hardware, communications and users.
- analyze a computing problem and to apply principles of computing to identify solutions.
- use of efficient data storing and retrieval technique along with basic programming skill.
- gather the fundamental knowledge on computer networks and web page designing.
- gain proficiency in data management, visualization, analysis, and presentation using a widely-used open source spreadsheet software application such as Open Office, Libre Office, or Google Spreadsheets.
- appreciate the ethical implications relating to the use of computing technology and information and identify the impact of technology on personal life and society.
- develop the knowledge, skills, and competencies needed to leverage the opportunities presented by the digital economy and to navigate the challenges and risks associated with online business operations.
- understand the basics of artificial intelligence and its subfields.
- develop an understanding of database management systems, with an emphasis on how to organize, maintain and retrieve - efficiently, and effectively.
- extract knowledge from data repository for data analysis, frequent pattern, classification and prediction.

Class XI

Total Contact Hours: 200 (Theory & Practical: 180 ; Remedial & Home Assignment:20)

SEMESTER – I

Course Code: COMA (Theory)

Full Marks: 35

Contact Hours: 100

Unit – 1	Computer System and Organisation	15 Marks	Total 30 Hours
	<ul style="list-style-type: none"> • Basic Computer Organisation <ul style="list-style-type: none"> ➤ CPU, Primary Memory (RAM, ROM, Cache), Secondary storage device, I/O devices, units of memory (bit, byte, KB, MB, GB, TB, PB). • Classification of Computers <ul style="list-style-type: none"> ➤ Super, Mainframe, Mini, PC. 		4 Hours
	<ul style="list-style-type: none"> • Concepts of Software <ul style="list-style-type: none"> ➤ Definition of software, types of software – System Software (Translator: assembler, interpreter, compiler, Loader, Linker, Operating System: Definition and functions, types of OS- Single use, Multiuse, Multiprogramming, Multiprocessing, Time sharing), Application Software (Definition and example), Utility Software, concept of GUI and CUI with examples using LINUX (Basic Commands). 		7 Hours
	<ul style="list-style-type: none"> • Number System <ul style="list-style-type: none"> ➤ Binary, Octal, Decimal, Hexadecimal number system, conversion between number system, Weighted Code (BCD, Binary, 84-2-1 code), non-weighted code (GREY, Excess-3), encoding schemes (ASCII, ISCII, uni code), 1's complement, 2's complement. 		9 Hours
	<ul style="list-style-type: none"> • Boolean Algebra <ul style="list-style-type: none"> ➤ Postulates, logic gates: NOT, AND, OR, NAND, XOR, XNOR, truth tables, De Morgan theorem, SOP, POS, Simplifications using KMap and Boolean algebra, logic circuits. 		10 Hours
Unit – 2	Programming Fundamentals	10 Marks	Total 20 Hours
	<ul style="list-style-type: none"> • Concept of Programming <ul style="list-style-type: none"> ➤ Instruction (Definition, Example), Program (definition, example), Programming Language (concept of high level, low level and assembly language), Procedural and Non-procedural programming, Concept of Structured Programming, Object Oriented Programming. 		2 Hours
	<ul style="list-style-type: none"> • Algorithm fundamentals <ul style="list-style-type: none"> ➤ Definition, characteristic of algorithm, recursive and non-recursive algorithms, representation of algorithm using flowchart, pseudo code, efficiency of algorithm, space complexity, time complexity, Asymptotic Notation- big O, big Omega, big Theta. 		15 Hours

	<ul style="list-style-type: none"> • Introduction to Problem Solving <ul style="list-style-type: none"> ➤ Steps for Problem Solving (analysing the problem, developing an algorithm, coding, testing, debugging). 	3 Hours
Unit – 3	Data Visualization using Spreadsheet	10 Marks
	<ul style="list-style-type: none"> • Introduction to Spreadsheets <ul style="list-style-type: none"> ➤ Spreadsheets and their applications, overview of spreadsheet software (e.g., Open office, Google Sheets, Excel), creating workbooks, modifying workbook, zooming in on a worksheet, arranging multiple workbook windows, adding buttons to the quick access toolbar, customizing the ribbon, maximizing usable space in the program window navigating the spreadsheet interface, entering and editing data in cells saving, opening, and closing spreadsheet files. 	6 Hours
	<ul style="list-style-type: none"> • Working with Data and Tables <ul style="list-style-type: none"> ➤ Entering and revising data, moving data within a workbook, finding and replacing data, correcting and expanding upon worksheet data, defining tables. 	5 Hours
	<ul style="list-style-type: none"> • Performing Calculations on Data <ul style="list-style-type: none"> ➤ Naming groups of data, creating formulas to calculate values (e.g., SUM, AVERAGE, COUNT), summarizing data that meets specific conditions (e.g., AVERAGEIF, COUNTA, COUNTBLANK, COUNTIFS, SUMIF, IFERROR etc), finding and correcting errors in calculations. 	5 Hours
	<ul style="list-style-type: none"> • Changing Workbook Appearance <ul style="list-style-type: none"> ➤ Formatting Cells, defining styles, workbook themes and table styles, making numbers easier to read, changing the appearance of data based on its value, adding images to worksheets. 	4 Hours
	<ul style="list-style-type: none"> • Data Analysis and Manipulation <ul style="list-style-type: none"> ➤ Limiting data appearance on screen, working with text functions for data cleaning, Splitting and combining data, Data normalization and standardization, working with ranges and named ranges, conditional formatting, data validation and error checking, using logical functions (e.g., IF, AND, OR), sorting and filtering data. 	10 Hours
	<ul style="list-style-type: none"> • Advanced Spreadsheet Features <ul style="list-style-type: none"> ➤ Creating and managing tables, working with charts and graphs, importing and exporting data, using goal seek. 	10 Hours
	<ul style="list-style-type: none"> • Reporting and Presentation of Results <ul style="list-style-type: none"> ➤ Designing informative reports and summaries, creating interactive dashboards for data presentation, data visualization best practices, documenting data analysis processes presenting findings to stake holders. 	8 Hours
	<ul style="list-style-type: none"> • Collaboration and Sharing <ul style="list-style-type: none"> ➤ Protecting worksheets and workbooks, sharing spreadsheets with others, tracking changes and commenting, 	2 Hours

SEMESTER – II

Course Code: COMA (Theory)

Full Marks: 35

Contact Hours: 80

Unit – 1	Data Structure	10 Marks	Total 30 Hours
	<ul style="list-style-type: none"> • Definition, types of data structure-linear and non-linear. 		2 Hours
	<ul style="list-style-type: none"> • Arrays: 1D, 2D and their applications. 		3 Hours
	<ul style="list-style-type: none"> • Linked List: Basic concepts of Single, circular and double link list. 		6 Hours
	<ul style="list-style-type: none"> • Stack <ul style="list-style-type: none"> ➤ Stack operations (push and pop), applications of Stack. 		4 Hours
	<ul style="list-style-type: none"> • Queue <ul style="list-style-type: none"> ➤ Queue operations, applications of queue, basic concepts of circular queue and priority queue. 		4 Hours
	<ul style="list-style-type: none"> • Recursion <ul style="list-style-type: none"> ➤ Definition. ➤ Advantages and limitations of recursion. 		4 Hours
	<ul style="list-style-type: none"> • Searching and Sorting <ul style="list-style-type: none"> ➤ Linear Search, Binary Search, and their comparison. ➤ Bubble Sort and its Implementation. 		7 Hours
Unit – 2	Computer Networks	15 Marks	Total 35 Hours
	>Introduction to Networking >>Analogue and digital Communication >>Mode of Communication- Simplex, half duplex and full duplex >>Network Architecture- Client server, Peer to Peer >>Serial and Parallel Communication >>Measuring Capacity of Communication Media (bandwidth, channel capacity, baud) >>Synchronous and asynchronous Transmission Mode >>Baseband and Broadband network.		6 Hours
	>Transmission Media >>Wired Communication Media (Twisted Pair, Co-axial cable, Fiber Optic). >>Wireless Communication Media (Radio wave, Microwave, Infrared, Satellite).		3 Hours
	>Network Connecting Devices >>Modem, Ethernet Card, RJ45, Repeater, Hub, Switch, Router, Gateway, Wifi card.		2 Hours
	>Network Type and Topologies >>Types of Network-LAN, MAN, WAN. >>Network Topologies- Bus, Star, Ring, Tree.		3 Hours

	> Network Protocols -HTTP, FTP, PPP, SMTP, TCP/IP, POP3, TELNET, HTTPS, VoIP.	2 Hours
	> Referential Model - OSI Model (Basic Concept, use of devices and protocols at different layers).	1 Hours
	> Introduction to Web Services: WWW, HTML, XML, IP Addresses, Domain names, URL, ISP, Website, Web browser, Web Server, Web Hosting.	3 Hours
	> HTML Basic Tags and Document structure, HTML Tags, Head Tags, Title Tags, Introduction to HTML and Web design, how to create simple Web page, how to format text, Create Table, Adding Web link and Images, Forms, adding styles and classes to web pages, Borders and Background, Adding Video and Graphics.	15 hours
Unit – 3	Ethics	10 Marks
	<ul style="list-style-type: none"> • Digital Footprints. 	1 Hour
	<ul style="list-style-type: none"> • Data Protection: Intellectual property rights (copyright, patent, trademark), violation of IPR (plagiarism, copyright infringement, trademark infringement), open-source software and licensing (Creative Commons, GPL and Apache). 	5 Hours
	<ul style="list-style-type: none"> • Cyber Crime: Definition, hacking, eavesdropping, phishing and fraud emails, ransomware, cyber trolls, cyber bullying. 	3 Hours
	<ul style="list-style-type: none"> • Cyber safety: Safely browsing the web, identity protection, confidentiality. 	2 Hours
	<ul style="list-style-type: none"> • Malware: Viruses, trojans, adware. 	1 Hour
	<ul style="list-style-type: none"> • E-waste management: Proper disposal of used electronic gadgets. 	2 Hours
	<ul style="list-style-type: none"> • Information Technology Act: (IT Act). 	1 Hour

Class XII

Total Contact Hours: 200 (Theory & Practical: 180 ; Remedial & Home Assignment:20)

SEMESTER – III

Course Code: COMA(Theory)

Full Marks: 35

Contact Hours: 100

Unit – 1	Python Programming	25 Marks	Total 80 Hours
	<ul style="list-style-type: none"> • Familiarization with the basics of Python programming <ul style="list-style-type: none"> ➤ Introduction to Python, Features of Python, executing a simple "hello world" program, execution modes: interactive mode and script mode, Python character set, Python tokens (keyword, identifier, literal, operator, punctuator), variables, concept of l-value and r-value, use of comments. 	4 Hours	
	<ul style="list-style-type: none"> • Knowledge of data types <ul style="list-style-type: none"> ➤ Number (integer, floating point, complex), Boolean, sequence (string, list, tuple), None, Mapping(dictionary), mutable and immutable data types. 	2 Hour	
	<ul style="list-style-type: none"> • Operators <ul style="list-style-type: none"> ➤ Arithmetic operators, relational operators, logical operators, assignment operators, augmented assignment operators, identity operators (is, is not), membership operators (in not in). 	3 Hours	
	<ul style="list-style-type: none"> • Expressions, statement, type conversion, and input/output <ul style="list-style-type: none"> ➤ Precedence of operators, expression, evaluation of an expression, type-conversion (explicit and implicit conversion), accepting data as input from the console and displaying output. 	3 Hours	
	<ul style="list-style-type: none"> • Errors: Syntax errors, logical errors, and run-time errors. 	2 Hours	
	<ul style="list-style-type: none"> • Flow of Control <ul style="list-style-type: none"> ➤ Introduction, use of indentation, sequential flow, conditional and iterative flow. 	4 Hours	
	<ul style="list-style-type: none"> • Conditional statements <ul style="list-style-type: none"> ➤ if, if-else, if-elseif-else. 	5 Hours	
	<ul style="list-style-type: none"> • Iterative Statement <ul style="list-style-type: none"> ➤ for loop, range (), while loop, break and continue statements, nested loops. 	7 Hours	
	<ul style="list-style-type: none"> • Strings <ul style="list-style-type: none"> ➤ Introduction, string operations (concatenation, repetition, membership and slicing), traversing a string using loops, built-in functions/methods–len(), capitalize(), title(), lower(), upper(), count(), find(), index(), endswith(), startswith(), isalnum(), isalpha(), isdigit(), islower(), isupper(), isspace(),lstrip(), rstrip(), strip(), replace(), join(), partition(), split(). 	10 Hours	

	<ul style="list-style-type: none"> • Lists <ul style="list-style-type: none"> ➤ Introduction, indexing, list operations (concatenation, repetition, membership and slicing), traversing a list using loops, built-in functions/methods–len(), list(), append(), extend(), insert(), count(), index(), remove(), pop(), reverse(), sort(), sorted(), min(), max(), sum()); nested lists. 	14 Hours	
	<ul style="list-style-type: none"> • Introduction to Python modules <ul style="list-style-type: none"> ➤ Importing module using 'import <module>' and using from statement, importing math module (pi(), sqrt(), ceil(), floor(), pow(), fabs(), sin(), cos(), tan()); random module (random(), randint(), randrange()), statistics module (mean(), median(), mode()). 	12 Hours	
	<ul style="list-style-type: none"> • Functions <ul style="list-style-type: none"> ➤ Types of function (built-in functions, functions defined in module, user defined functions), creating user defined function, arguments and parameters, default parameters, positional parameters, function returning value(s), flow of execution, scope of a variable (global scope, local scope). 	14 Hours	
Unit – 2	E-Commerce	10 Marks	Total 20 Hours
	<ul style="list-style-type: none"> • An introduction to Electronic Commerce <ul style="list-style-type: none"> ➤ What is E-Commerce (Introduction and Definition), Main activities E-Commerce, Goals of E-Commerce, Technical Components of E-Commerce, Functions of E-Commerce, Advantages and disadvantages of E-Commerce, Scope of E-Commerce, Electronic Commerce Applications, Electronic Commerce and Electronic Business (C2C, C2G, G2G, B2G, B2P, B2A, P2P, B2A, C2A, B2B, B2C). ➤ Internet, Intranet & Extranet, Role of Internet in B2B Application, Web promotion, Banner, Exchange, Shopping Bots. 	8 Hours	
	<ul style="list-style-type: none"> • Electronic Payment System <ul style="list-style-type: none"> ➤ Introduction, Types of Electronic Payment System, Payment Types, Value Exchange System, Credit Card System, Electronic Fund Transfer, Paperless bill, Modern Payment Cash, Electronic Cash. 	6 Hours	
	<ul style="list-style-type: none"> • Internet Marketing <ul style="list-style-type: none"> ➤ The PROS and CONS of online shopping, The cons of online shopping, Justify an Internet business, Internet marketing techniques, The E-cycle of Internet marketing, Personalization e-commerce. 	6 Hours	

SEMESTER – IV

Course Code: COMA (Theory)

Full Marks: 35

Contact Hours: 80

Unit – 1	Database Management System	15 Marks	Total 35 Hours
	<ul style="list-style-type: none">• Introduction<ul style="list-style-type: none">➤ Drawbacks of Legacy System, Advantages of DBMS, Layered Architecture of Database, Data Independence, Data Models, Schemas and Instances, Database Languages, Database Users, DBA, Data Dictionary.		3 Hours
	<ul style="list-style-type: none">• Entity Relationship (ER) Modeling<ul style="list-style-type: none">➤ Entity, Attributes and Relationship, Structural Constraints, Keys (Super Key, Key, Candidate Key, Alternate Key, Primary Key), ER Diagram of Some Example Database, Weak and strong Entity Set, Specialization and Generalization, Constraints of Specialization and Generalization, Aggregation.		7 Hours
	<ul style="list-style-type: none">• Relational Model<ul style="list-style-type: none">➤ Basic Concepts of Relational Model, Relational Algebra.		8 Hours
	<ul style="list-style-type: none">• Integrity Constraints<ul style="list-style-type: none">➤ Domain Constraints, Referential Integrity, View.		2 Hours
	<ul style="list-style-type: none">• SQL<ul style="list-style-type: none">➤ Introduction, Data Definition Language and Data Manipulation Language, Data type (char(n), varchar(n), int, float, date), constraints (not null, unique, primary key), create database, use database, show databases, drop database, show tables, create table, describe table, alter table (add and remove an attribute, add and remove primary key), drop table, insert, delete, select, operators (mathematical, relational and logical), aliasing, distinct clause, where clause, in, between, order by, meaning of null, is null, is not null, like, update command, delete command, aggregate functions (max, min, avg, sum, count), group by, having clause, joins: cartesian product on two tables, equi-join and natural join .		15 Hours
Unit – 2	Data Warehousing and Data Mining	10 Marks	Total 20 Hours
	<ul style="list-style-type: none">• Introduction:<ul style="list-style-type: none">➤ What is Data Warehouse? Data Warehouse Modelling. Data Cude and OLAP, Data Warehouse Implementation, Data Mining, what kind of data can be mined, what kind of patterns can be mined, Data cleaning, Data Transformation: Strategies, Overview.		10 Hours
	<ul style="list-style-type: none">• Data Mining Applications and Trends:<ul style="list-style-type: none">➤ Mining Sequence Data, Time Series, Symbolic, Biological, Statistical Data Mining, Visual and audio Data Mining, Data Mining Application, Data Mining trends.		10 Hours

Unit – 3	Foundation of Artificial Intelligence (AI)	10 Marks	Total 25 Hours
	<ul style="list-style-type: none"> • Introduction to Artificial Intelligence <ul style="list-style-type: none"> ➤ Definition and scope of AI. ➤ Historical overview and key milestones. ➤ Differentiating AI from human intelligence. 		4 Hours
	<ul style="list-style-type: none"> • AI Subfields and Technologies <ul style="list-style-type: none"> ➤ Machine learning: Supervised, unsupervised, and reinforcement learning. ➤ Deep learning and neural networks. ➤ Natural language processing (NLP) and computer vision. 		10 Hours
	<ul style="list-style-type: none"> • Applications of AI <ul style="list-style-type: none"> ➤ AI in finance: Fraud detection, algorithmic trading, and risk assessment. ➤ AI in customer service and chatbots. ➤ AI in education: Personalized learning and intelligent tutoring systems. 		8 Hours
	<ul style="list-style-type: none"> • Ethical and Social Implications of AI <ul style="list-style-type: none"> ➤ Bias and fairness in AI systems. ➤ Impact of AI on employment and the workforce. ➤ AI and social inequality. 		3 Hours

Class XI

COURSE CODE: COMA (PRACTICAL)

Full Marks: 30

1.	Preparing Worksheet using Excel 2010 <ul style="list-style-type: none">• Implementation 9 Marks• Output 3 Marks	12 Marks
2.	Webpage Designing using HTML One HTML Coding Program <ul style="list-style-type: none">• Designing 3 marks• Coding 5 marks• Output 2 marks	10 Marks
3.	Lab Book	3 Marks
4.	Viva	5 Marks

Suggestive Worksheet Preparation using MS-Excel -2010

1. Create a personal budget spreadsheet that tracks income, expenses, and savings over a specified period. Use formulas and functions to calculate totals, percentages, and remaining balances.
2. A dataset containing sales data for a company to be provided. A spreadsheet to be created that calculates monthly sales totals, identifies top-selling products, and visualizes sales trends using line charts or bar graphs. Use conditional formatting to highlight exceptional sales performances.
3. Design a grade book spreadsheet that calculates students' final grades based on assignments, exams, and participation. Incorporate weighted grading systems, formulas for calculating averages, and conditional formatting to indicate performance levels. Generate reports to track individual student progress.
4. Create a spreadsheet that tracks inventory for a hypothetical business. Include columns for item names, quantities, prices, and total values. Use formulas to automatically update inventory totals, generate alerts for low stock, and create visualizations to represent inventory levels over time.
5. Loan parameters, such as principal amount, interest rate, and loan term to be provided. Create a spreadsheet that calculates monthly loan payments, remaining balances, and interest paid over time using appropriate formulas. Create a chart to visualize the loan's repayment schedule.
6. Dataset to be provided which will allow various data analysis tasks using spreadsheets. Calculation of summary statistics, sorting and filtering data and generation of charts or graphs to visualize patterns or trends within the data.
7. A dataset to be selected (e.g., stock prices, weather data, population growth, etc) and create line charts or area charts to visualize trends over time. Students should choose appropriate chart types, label axes, and add titles and legends to make the visualization clear and informative.
8. A dataset containing information about different products or variables (e.g., sales data, customer satisfaction ratings) to be provided and following to be done; create bar charts or column charts to compare the performance or rankings of the items. Use color, data labels, and chart elements to enhance the visual comparison.
9. A dataset containing time-series data for multiple variables (e.g., monthly sales data for different products) to be provided and the following task to be performed; to create a combo chart with lines and columns to compare the trends of the variables and identify any relationships or patterns.

Suggestive Webpage Designing Program using HTML

1. Write HTML Code to design a webpage with the following information: -
 - Your name
 - Your address
 - Your phone number
 - Your email address
 - Write a paragraph about “what do you want to be”

2. Write HTML code to design the following webpage: -

Welcome to ABC School

- Management
- Teachers
- Non-teaching staff

Information

Create a hyperlink on “information” so that below described webpage will be opened.

Courses offered by ABC School in HS under WBCHE

- Science
- Arts
- Commerce

3. Write HTML code to design the following webpage. Insert a Picture at background.

Welcome to Wonderland Park

- Ticket Price-Rs. 50 per head
- Park Timing-10:00 to 19:30

4. Write HTML code to design a webpage that contains two Frame. One frame contains a webpage which has information about Rabindranath Tagore like his parent’s name, his three popular books. The name of the books will be in bulleted list format. There will be an image of Rabindranath Tagore. The background of the page will be in yellow colour. The font will be in green colour. The title of the page will be Kabi Guru. Another frame contains a webpage which has information about Netaji Subhas Chandra Bose like his parent’s name, INA. The background of the page will have a picture of INA. The title of the page will be Netaji
5. Write HTML code to design a webpage which contains your school daily class routine in tabular format. The background of the page will be pink in color. Font will be dark red color. The heading of the page will be “Our Daily Class Routine”. Add a marquee to this heading.

CLASS XII

COURSE CODE : COMA (PRACTICAL)

Full Marks: 30

1.	Python Program <ul style="list-style-type: none">• Coding 9 Marks• Output 3 Marks	12 Marks
2.	MYSQL <ul style="list-style-type: none">• Table creation 3 Marks• Data insertion in table 2 Marks• Two Queries 5 Marks	10 Marks
3.	Lab Book	3 Marks
4.	Viva	5 Marks

Suggested Practical List

List of Suggestive Python Program

- Input a welcome message and display it.
- Input two numbers and display the larger / smaller number.
- Input three numbers and display the largest / smallest number.

- Generate the following patterns using nested loops:

Pattern-1	Pattern-2	Pattern-3
*	12345	A
**	1234	AB
***	123	ABC
****	12	ABCD
*****	1	ABCDE

- Write a program to input the value of x and n and print the sum of the following series:

$$\triangleright 1 + x + x^2 + x^3 + x^4 + \dots x^n$$

$$\triangleright 1 - x + x^2 - x^3 + x^4 - \dots x^n$$

$$\triangleright x + \frac{x^2}{2} + \frac{x^3}{3} + \frac{x^4}{4} + \dots \frac{x^n}{n}$$

$$\triangleright x + \frac{x^2}{2!} + \frac{x^3}{3!} + \frac{x^4}{4!} + \dots \frac{x^n}{n!}$$

- Determine whether a number is a perfect number, an Armstrong number or a palindrome.
- Input a number and check if the number is a prime or composite number.
- Display the terms of a Fibonacci series.
- Compute the greatest common divisor and least common multiple of two integers.
- Count and display the number of vowels, consonants, uppercase, lowercase characters in string.
- Input a string and determine whether it is a palindrome or not; convert the case of characters in a string.

- Find the largest/smallest number in a list.
- Input a list of numbers and swap elements at the even location with the elements at the odd location.
- Input a list of elements, search for a given element in the list.
- Write a random number generator that generates random numbers between 1 and 6.

Database Management System

- Create a student table and insert data. Implement the following SQL commands on the student table:
 - ALTER table to add new attributes / modify data type / drop attribute
 - UPDATE table to modify data
 - ORDER By to display data in ascending / descending order
 - DELETE to remove tuple(s)

 - GROUP BY and find the min, max, sum, count and average.

 - LIKE, DISTINCT, NOT IN, IN, JOIN, CARTISIAN PRODUCT, SET DIFFERENCE, UNION, INTERSECTION etc.