- ❖ Algorithm / DATA Structures
  - Data type Implementation - Stack Vs Queue vs List
  - Sorting Algorithms : Selection , Bubble , Quick
  - QSort – Advantages & Implementation, partition & pIndex

- ❖ PHP / CORE
  - o Basics , OOPs
    - REGEX - RegEx for common Zip, password, username, address , ip , date range
    - HTML5 - Few interesting stuff like : <input type='date'>
    - PSR - Coding standard. PSR 0,1,2. Usage on tools like `php-cs-fixer`
    - Object-oriented interface | PDO(PHP Data Objects) Vs MySQLi(MySQL improved)
    - PDO - Is it DB abstraction or data access layer? Explain
    - MySQLi - Is it PEAR extension or external library ? What's the use?
    - Interface Vs Abstract & Constructors Vs Destructors
    - > PHP5+ features : Method overload vs Override
    - Magic Methods , __MEHOD__ , __sleep() & __wakeup()
    - Scopes on Objects. Static vs Public vs Private

  - o API - Application programming interface. Usage, Scope , Benefits
    - Communication on services - REST , SOAP vs Microservices

  - o User Tracking Mech
    - Communication - Stateless and Stateful
    - PROTOCOL - HTTP Vs FCP and Common methods
    - CONNECT,DELETE,GET,HEAD,OPTIONS,POST,PUT
    - Error Codes - 40X,5XX,1XX eg. 404 -standard; 403 forbidden
    - Handshake - Request & Response (HEADER/BODY)
    - SSL Certificates – Purpose
    - Cookie Vs Session – Their Scope, Lifetime, Management

  - o Frameworks
    - Best preferred features on CakePHP & CodeIgniter

  - o Dependency Handling: Composer Vs PEAR
    - JSON Composer - PEAR Extension repo

  - o Virtualization : Docker (Containers) Vs Vagrant (VirtualBox)

  - o Testing,Automation, CI/CD
    - Test-driven development (TDD)
    - Selenium Vs PHPUnit. Code coverage,Result reporting
    - Continuous Integration, Continuous delivery vs deployment
    - `phinx` - DB Migration

  - o Troubleshoot, Debugging, Tuning, Profiling:
    - Log Analysis - Main logs on Apache, error-log , access-log & their full path
    - xDebug , var_*(dump|export)
    - xProfiling
    - error_reporting - Various levels - purpose
    - External tools - Splunk | NewRelic

  - o Design Patterns :
    - Factory method vs Singleton pattern vs Strategy pattern
    - MVC pattern Model-View-Controller

- ❖ Java Scripts
  - Angular JS, Intro JS , NodeJS
  - jQuery & extensions – dataTables
  - Compression over Transmission

- ❖ CSS & Interactive design
  - Responsive design , Mobile friendly pages
  - SPA – Single Page Application development
  - Media maintenance within application

- ❖ OWASP Cybersecurity
  - SQL/Script Injection, Broken Auth & Session Management
  - XSS and CSRF - Remediation
  - Security Scanning Tools – HPInspect , Fortify & clamav

- ❖ Apache
  - Configuration Tweaks, Rewrites on httpd.conf
  - Multi domain virtual hosting
  - Bench-marking : `ab` tool

- ❖ MySQL & DBMS
  - o Basics
    - Engines - InnoDB , MyISAM - Read vs Write
    - Data types - FLOAT, NUMBER... their bit range variation on diff HW platform
    - Routines - Triggers vs Functions vs Procedures
    - ACID (atomicity, consistency, isolation, and durability)
    - Transaction - BEGIN , COMMIT , ROLLBACK

  - o Tuning, Performance , profiling & File
    - Finding the `Slow query`
    - Managing memory allocation ; Buffer management
    - show variables like '%BUFFER_SIZE%';
    - Lookups - What is it & why we analyze it ?
    - Lookups Vs Actual Result set Ratio
    - Indexing Types - INDEX , (PRIMARY) KEY , UNIQUE
    - File Level operations of Indexing on table.idx,table.frm & table.dat
    - (Dis)Advantages of Indexing
    - Cardinality - How it'll help over SQL design ?
    - KEY Constraint – Foreign

  - o DBMS LESS Design - NoSQL , Redis , MemCache

- ❖ Version Control
  - o GIT – GitHub Account
    - Branching vs Merging vs Cherry-Pick'ing .
    - origin/master & origin/development
    - SQUASH vs REBASE
    - Branch switching & Stash [pop, list, manage]

- ❖ VIM – Customization with VIm & it's extensions (.vimrc)

- ❖ GNU/LINUX , SHELL
  - .bashrc , .profile, .bash_profile
  - /etc/shadow vs /etc/passwd
  - `crontab` Management & it's log path
  - Basic scripting $0,$@,$#,$$,$!,$? , XARGS
  - Process management - top , kill , ps ,
  - Tool usage on find , grep, cURL , wget , tail , head