Training Freshers 18

➔ **Introduction Session**
- ◆ What is about Golden Hammer Syndrome?
- ◆ To Read - Agile manifesto website
- ◆ To Read - Waterfall model of software management
- ◆ To Read - Scrum, Kanban , XP (Extreme Programming)

➔ **Computer Programming**
- ◆ Compiled vs interpreted language
- ◆ Procedural, imperative, object-oriented and functional programming
- ◆ OOP 101
- ◆ Understanding of compiler
- ◆ Typed vs Untyped
- ◆ Static vs Dynamic typing
- ◆ Weak and Strong typing
- ◆ Markup languages and scripting
- ◆ HTML 101
- ◆ CSS 101
- ◆ Basics of threads
- ◆ Basics of OS Processes
- ◆ What makes code good or bad?
    - Design principles

➔ **What is servers?**
- ◆ App Servers
- ◆ Web Servers
- ◆ Database Server!!?

➔ **Python**
- ◆ Data Structures
- ◆ OOPS Concepts
- ◆ PIP
- ◆ Virtual environment
- ◆ Exceptions
- ◆ PEP 8

➔ **Django Framework**
- ◆ Django 101
- ◆ Django Tutorial Application
- ◆ APIs Development
- ◆ Django Project Structure

- Asynchronous Vs Synchronous jobs
- Overall Structure of Django
- Request/Response Flow

➔ **HTTP and RESTful API**

- HTTP (GET, POST, PUT, DELETE)
- HTTP headers
- Difference in URL, URN and URI
- RESTful API (https://en.wikipedia.org/wiki/Representational_state_transfer)
- Royfield Thesis RESTful concepts on(http://www.ics.uci.edu/~fielding/pubs/dissertation/rest_arch_style.htm)
- HTTP Cookies

➔ **Linux**

- vi/vim commands
- sed/awk
- Grep
- Man pages
- General commands to run.

➔ **Amazon Web Service**

- What is data centre?
- AWS 101
- AWS S3 101
- AWS EC2 101
- AWS SQS 101
- AWS Redis 101
- IAM 101
- Who are the other service providers?

➔ **Deployment/Continuous Integration, Testing**

- Jenkins
- What are different CI tools?
- Travis CI
- Ansible & Vagrant

➔ **Version/Source Control Tools:**

- What is Version Control System (VCS)?
- What is the difference in CVS, SVN, Git?
- Why use Git?
- Do Git 101 (Reference: use Bitbucket/Github help)

- Clone repository, commit,
- create branch and merge your changes
- How to resolve conflicts (Tools)

➔ **Floating Point Arithmetic**

- Floating point arithmetic 101 - http://en.wikipedia.org/wiki/Floating_point
- Precision and Accuracy
- Rounding rules

➔ **SQL/NoSQL**

- SQL 101
- NoSQL 101
- Difference in SQL and NoSQL and advantages/disadvantages of one over other
- RDBMS 101
- MySQL 101
- Why or why not MySQL?
- Elasticsearch 101
- Queue 101 (SQS & Kafka)
- Redis 101

➔ **Agile Development**

- Read agile manifesto? Why use Agile?
- Waterfall Vs Agile? What is XP? XP principles?
- TDD? Unit tests, integration, regression tests?

➔ **Ubuntu Desktop and Server**

- Build Ubuntu server from scratch
- What is difference in Debian and RPM based distros?
- List different distros and understand why one is better over other?
- Why use Ubuntu - both on server and desktop side

➔ **JavaScript 101**

- single thread model
- JS Event loop
- Event propagation model (bubbling and capturing)
- JSON

- **Linear Algebra and Set Theory**
  - Linear algebra 101
  - Set theory 101

- **Statistics and Probability**
  - Population/sample
  - Frequency distribution, cumulative frequency distributions, histograms
  - Measures of central tendency
  - Measures of dispersion
  - Symmetry and skewness of data
  - Covariance and correlation
  - Random variable
  - Conditional probability
  - Bayes rule
  - Different data distributions - Uniform, Normal, Binomial, Poisson
  - Central limit theorem
  - Standard error
  - Linear regression, multiple regressions. Assumptions?
  - ANOVA
  - Serial correlation, multicollinearity?
  - Heteroskedasticity?

- **Reading Books**
  - The Clean Coder - Robert C Martin.
  - The Clean Code - Robert C Martin.
  - The Art of Readable Code - Dustin Boswell and Trevor Foucher
  - Refactoring - Martin Fowler
  - Patterns of Enterprise Application Architecture - Martin Fowler
  - Planning Extreme Programming - Kent Beck and Martin Fowler
  - Test Driven Development: By Example - Kent Beck
  - Extreme Programming Explained: Embrace Change - Kent Beck and Cynthia Andres
  - Sed and Awk - Arnold Robbins and Dale Dougherty
  - Six Thinking Hats - Edward de Bono
  - How LINUX Works - Brian Ward
  - Joels on Software - Joel Spolsky
  - More Joels on Software - Joel Spolsky