**Level 1: Codeathon TOC (e.g.) Python, Web testing……**

Level 2: Individual Syllabus for each Codeathon TOC

Level 3: Course Content (i.e.) Actual PPT/ Examples…

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**Testoper Codeathon (Become the Expert)**

Testoper Codeathon is a free (\*) and multi-year continuous bi-weekly program for the individuals in the Testoper community who inspire to play the role of an expert in future Innovation.

**Date:** 5th March 6 to 8 PM

**Duration:** 2 hours

**Recurrence:** Bi-Weekly every Thursday

**No of Sessions:**22

**Location:** TBC

**Capacity:** 30 Testopers only

**Space and Food Expenses:** 300 per person/per year

\* The program is free; however, you pay for the actual expenses of space and snacks/dinner facilitated during the Codeathon by the Testoper community. It is mandatory to pay 300 per person/per year upfront to register and secure the limited seats available.

**Who should attend?**

* Architects, designers and developers to learn test automation and operations skills in the world of agile to become a Testoper
* Testers and operations experts to develop skills and to advance career in the automation and intelligent automation domain
* The individuals who is hungry to stand out of the crowd, and passionate about innovation in everything they do
* The individuals who is determined to make a difference at work as an Intrapreneur delivering continuous improvement, efficiency, and quality products
* And, for individuals to connect, develop, launch, and advance their Entrepreneur dreams into reality

**Prerequisites:**

Prerequisite is good to know before attending Testoper Codeathon. Even if you do not know, No WORRIES! You will learn it together with the community.

1. **Programming Language** – Python, Java
2. **Scripting Language** – Node JS
3. **Modelling Language** - YAML
4. **Database** – MongoDB, CouchDB, MongoDB, PostgreSQL, MySQL
5. **DevOps (version control) –** GitHub

**General Track:**

This set of sessions will introduce to the basics of automation and relevant disruptive technologies. And, it will set the excellent foundation for acquiring the breadth of knowledge, which is vital to spark the innovation within, and in what we do in subsequent Codeathon sessions.

1. **Introduction to Automation**
2. **Disruptive Technology Basics** - Cloud, NFV/SDN, MEC, 5G, IoT, Industry 4.0, Blockchain, AI, AR and VR
3. **Introduction to Automation for Testing and Operations (DevOPS)**
4. **Introduction to Intelligent Automation -** Data Science, AI and ML

**Automation for Testing and Operations Track:**

The goal of this track is to develop automation skills that are mandatory for innovation to become an intrapreneur and entrepreneur in the world of testing, operating, and delivering high-quality application products and solutions effectively, efficiently, and faster.

1. **Web Application** – Selenium, Kantu, Applitools, Sikuli, UI Automation, Selenium Grid for cross browser, and cloud automation
2. **Mobile Application** – iOS, Android, Appium, Genymotion, and Iphone Simulator
3. **Application Programmable Interface (API)** – Postman, Newman, DB Queries for SQL/NoSQL, RestAPI, and Web Service Architecture
4. **Desktop Application** – Winium, and Sikuli
5. **Database and Application Performance** – Query, NoSQL, RDBMS, and JMeter
6. **Logging, Analytics, and Management** – Logstash, Log4j / Slf4j, Kibana, and Elastic Search, Jira, TestLink, and Ride GUI
7. **Automation Framework** – ROBOT, and POM
8. **DevOPS**
   1. **Source Code Management** - Git
   2. **Build Management -** Gradle
   3. **Code Quality and Test management** – Cucumber
   4. **Infrastructure Management** – AWS
   5. **Deployment & Configuration Management** – Ansible
   6. **CICD** – Jenkins
9. **Analytics, and AI / ML for testing and operations**

**Intelligent Automation Track:**

The goal of this track is to develop hands-on experience to become a Data Analyst, Data Engineer, Data scientist, and AI/ML intelligent automation expert. It will build the foundation for future innovation in this subject within your company as an Intrapreneur and an Entrepreneur.

1. **Introduction to Data science** – Moneyball, Voter Turnout, and Engineering Solutions
2. **Statistics, AI, Machine Learning, Deep Learning, Software engineering for Data Science** – NumPy, PyTorch, Jupyter, and Apache Spark
3. **Structure and output of a Data Science Project / Experiment**
4. **Defining Success -** Four Secrets of a successful Data Science Experiment
5. **Data Science Toolbox –** Big data, Datasets, Stat Models, Refining data, Training models, Dataflow diagrams level 0-4, validation and deployment
6. **Data Science for Startup, SME, and Large Organizations**
7. **Common Challenges and difficulties for Data Science –** Interaction and internal
8. **Managing Data Analysis** – Forecasting, replenishment, and optimization
9. **The Data Analysis Iteration** – HLD, data structures, data flow and predictive analytics
10. **Epicycle of Analysis** – Process and data flow diagrams
11. **Exploratory Data Analysis and Modeling**
    1. What Are the Goals of Formal Modeling?
    2. Associational Analyses
    3. Prediction Analyses
12. **What You’ve Gotten Yourself Into**
    1. Data double duty
    2. Multiplicity
13. **Randomization versus observational studies**
    1. The Data Pull is Clean
14. **The Experiment is Carefully Designed: Principles**
    1. Causality
    2. Confounding
15. **The Experiment is Carefully Designed: Things to Do**
    1. A/B testing
    2. Sampling
    3. Blocking and Adjustment
16. **Results of the Analysis Are Clear**
    1. Multiple comparisons
    2. Effect sizes, significance, modeling
    3. Comparison with benchmark effects
    4. Negative controls
17. **The Decision is Obvious**
    1. The decision is (not) obvious
    2. Estimation target is relevant