

Annex

The learning phase of the Developers Foundry will be for 6 months and follow the format below:

Phase	Duration	Objective	Instructors	Focus
Bootcamp	1 month	Revise core concepts and address foundational knowledge gaps.	Highly experienced senior engineers from relevant companies	Tailored curriculum per track, foundational concepts refresher
Project-Based Technical Training	4 months	Equip participants with in-depth technical knowledge and practical skills through project-based learning	Senior engineers with extensive industry experience	Project-based learning with real-world applications, building mid-level developer competencies.
Soft Skills and Final Project	1 Month	Develop critical soft skills and apply acquired technical skills to a culminating project	Industry professionals and senior engineers	Soft skills development (Communication, time management) & complex project showcasing mid-level developers capabilities

Training Curriculum Per Learning Track

Learning Track - DevOps and Cloud Computing

Month	Topics	Projects/Activities
Month 1	Bootcamp	Revise core concepts and address foundational knowledge gaps.
Month 2 - 5	Advanced Cloud Concepts (Containers, Serverless, Cloud Networking); Advanced AWS/Azure/GCP Services	- Deepen understanding of cloud technologies like containers (Docker, Kubernetes), serverless (AWS Lambda), and networking (VPCs, subnets). - Explore advanced services like AWS ECS, Azure Functions, or GCP Cloud Functions.
	Advanced IaC with Terraform or CloudFormation,	Write complex infrastructure as code (IaC) scripts using Terraform or CloudFormation.

	Advanced CI/CD Pipelines, Infrastructure Security	- Build advanced CI/CD pipelines with build automation and automated testing. - Enhance infrastructure security with encryption and IAM policies.
	Advanced Monitoring and Logging, Autoscaling Strategies, Advanced Networking Concepts	- Implement advanced monitoring and logging with tools like Prometheus, ELK stack, or Datadog. - Optimize autoscaling strategies for performance and cost efficiency. - Explore advanced networking concepts like VPC peering and VPN.
	Real-world DevOps Project with High-Availability Deployment, Chaos Engineering, Compliance and Governance	- Work on a real-world DevOps project with a team, focusing on high-availability deployment. - Implement chaos engineering practices to test system resilience. - Ensure compliance with industry regulations and implement governance policies.
Month 6	Soft Skills	Develop critical soft skills and apply acquired technical skills to a culminating project

Learning Track – Artificial Intelligence and Machine Learning

Month	Topics	Project/ Activities
Month 1	Bootcamp	Revise core concepts and address foundational knowledge gaps.
Month 2 - 5	Advanced Python for Data Science, Advanced Linear Algebra, Advanced Data Structures and Algorithms	- Deepen Python knowledge with advanced libraries (e.g., NumPy, pandas) - Study advanced concepts in linear algebra and apply them to ML. - Implement advanced algorithms and data structures.
	Neural Networks: CNNs, RNNs; Model Interpretability and Explainability; Model Deployment (RESTful APIs, Docker)	- Build and train CNNs and RNNs for computer vision and NLP tasks. - Implement model interpretability techniques like LIME or SHAP. - Deploy a trained model as a RESTful API using Docker and Flask.
	Reinforcement Learning; Model Deployment in Production (Kubernetes, Continuous Deployment); Ethical AI	- Understand the fundamentals of reinforcement learning and implement RL algorithms. - Deploy models to production using Kubernetes and implement continuous deployment pipelines. - Explore ethical issues in AI and understand responsible AI practices.
	Real-world ML Project with Advanced Data	Work on a real-world ML project with a team, focusing on deploying and

	Pipelines, CI/CD for ML Models, Model Monitoring, A/B Testing	- monitoring ML models. - Build advanced data pipelines for model training and evaluation. - Implement A/B testing for model performance comparison.
Month 6	Soft Skills	Develop critical soft skills and apply acquired technical skills to a culminating project

Learning Track - Mobile Application Development

Month	Topics	Projects/Activities
Month 1	Bootcamp	Revise core concepts and address foundational knowledge gaps.
Month 2 - 5	Java/Kotlin/Swift Advanced Concepts, Advanced UI Design, Localization, Design Patterns	- Design and build complex UIs with advanced animations and custom views. - Implement localization for multiple languages. - Utilize design patterns like MVC or MVVM.
	Advanced Topics: Fragments/ViewControllers, Network Security, Advanced Debugging and Profiling	- Master fragments/view controllers and understand their lifecycle and interactions. - Implement secure networking using HTTPS and SSL pinning. - Use advanced debugging tools for performance analysis.
	Background Processing, Push Notifications, Performance Optimization, Memory Management	- Implement background services or threads for long-running tasks. - Integrate push notifications with Firebase or Apple Push Notification Service (APNs). - Profile and optimize memory usage for better performance.
	Real-world Mobile App Project with Cloud Backend Integration, Advanced App Security, Offline Capabilities	- Collaborate on a real-world project, integrating with a cloud backend using RESTful APIs. - Implement advanced security features like biometric authentication. - Develop offline capabilities using local data storage.
Month 6	Soft Skills	Develop critical soft skills and apply acquired technical skills to a culminating project

Learning Track - Software Development Backend

Month	Topics	Projects/Activities
	Bootcamp	Revise core concepts and address

Month 1		foundational knowledge gaps.
Month 2 - 5	Data Structures and Algorithms Review, RESTful API Design, Advanced Debugging Techniques	- Implement and benchmark common data structures like arrays, linked lists, and trees. - Design and document RESTful APIs using OpenAPI/Swagger. - Master debugging tools and techniques.
	Microservices Architecture, Event-Driven Architecture, Advanced API Security, API Versioning	- Design and implement a microservices-based architecture. - Develop an event-driven system using message brokers like Kafka. - Implement security features like OAuth2 or JWT.
	Database Performance Tuning, Advanced Testing (Integration, End-to-End), CI/CD Pipelines for Backend Services	- Optimize database queries and indexes for better performance. - Write and execute integration and end-to-end tests using popular testing frameworks. - Build CI/CD pipelines for backend services using Jenkins or GitLab.
	Real-world Backend Project with Cloud Deployment and Monitoring, Disaster Recovery Strategies, Compliance	- Work on a full-stack project with a team, deploying backend services to the cloud. - Set up monitoring and alerting using tools like Prometheus and Grafana. - Implement disaster recovery strategies and ensure compliance with industry standards.
Month 6	Soft Skills	Develop critical soft skills and apply acquired technical skills to a culminating project

Learning Track - Software Development Frontend

Month	Topics	Projects/Activities
Month 1	Bootcamp	Revise core concepts and address foundational knowledge gaps.
Month 2-5	HTML, CSS, JavaScript Advanced Concepts, Browser Developer Tools	- Build a pixel-perfect website with HTML and CSS, focusing on layout, typography, and responsiveness. - Use JavaScript to implement interactivity and basic animations. - Utilize browser developer tools for debugging and optimization.
	React/Angular/Vue.js Fundamentals, Build Tools (Webpack, Parcel), State Management, Responsive Design	- Build a complex front-end application using the chosen framework, integrating tools like Webpack for bundling. - Implement state management solutions like Redux or Vuex. - Enhance the website for different screen sizes using responsive design techniques.

	Advanced Framework Features (React Hooks, Angular Services, Vue Router), Performance Optimization	• Implement advanced features like React Hooks, Angular services, or Vue Router. • Optimize the website for performance using techniques like code splitting and lazy loading.
	Real-world Frontend Project with Continuous Integration and Deployment (CI/CD), Testing, and Accessibility	• Collaborate on a real-world project with a team, using a CI/CD pipeline for automated testing and deployment. • Write comprehensive tests to ensure the website's functionality. • Conduct accessibility audits and implement fixes.
Month 6	Soft Skills	• Develop critical soft skills and apply acquired technical skills to a culminating project

Training Schedule:

- **Total Technical Training Duration:** 6 months
- **Total Internship (Paid/ Unpaid):** 6 months
- **Number of days per week:** 5 days (Monday –Friday)
- **Number of hours per day:** 4 Hours.