DEVOPS PROFESSIONAL TRAINING COURSE

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Congratulations!

You have successfully completed the Phase 1 of your course on DevOps Professional Training Course. Now you are moving on to the Phase 2 that requires you to implement three projects covering the knowledge that you have gained throughout your journey with your mentor.

Please find the description of the projects in the further pages.

Once you reach at the end of your project deadline as mentioned by the mentor/15 days (whichever applicable), you need to submit the project reports in PDF format.

The project report should include the step in written format followed by the relevant screenshots below that. You can refer to a sample report in Appendix-I at the end of this document.

Wish you all the very best for your journey in Phase 2 of the training program of this course.

Student Support Team,
Teqstories

Project 1

Project:	XYZ Corporation wants to setup a Continuous Integration pipeline to speed up their delivery process. They need this setup on cloud to access from remote location. Help them to setup the CI pipeline using Jenkins as your primary tool.
Estimated Duration:	2 Hours
Module Coverage:	Git, GitHub, Maven, Jenkins
Steps and Explanation:	As the developer pushes the code to the official GitHub repository, it should be built and ready for the further steps. In order to create this setup on cloud, first we need to start a VM and install the following tools required for this project. The list of tools that we require are given below: ● Git ● Java ● Maven ● Jenkins The list of tasks go as follows: In the VM - ● Install the tools required one by one ● Configure git with the GitHub repository provided.(For testing purpose use a GitHub repository created by you) ● Configure Jenkins with the path for java, git repository and maven and install a plugin for maven integration ● Define the cron job and test the working Expected outcome: Our setup should be able to detect changes in the GitHub repository and make a build so that it shall be ready for the further steps.

Project 2

Project:	ABC Corporation had been using a Docker based containerization solution but they were lacking the High Availability. They consulted Teqstories for helping them setup a highly available container cluster setup with scalability and fault tolerance. They need this setup on cloud. Help them setup the project using Kubernetes.
Estimated Duration:	8 Hours
Module Coverage:	Git, GitHub, Maven, Jenkins, Docker, Kubernetes, Ansible
Steps and Explanation:	N.B. you can use the https://www.github.com/sonasonaram/SampleRegistrationForm repository by forking it in your GitHub account. However, it is not mandatory to use this. You are welcome to setup your own repository. - Create 3 VMs (VM1, VM2, VM3) - Install git, java, maven, Jenkins in VM1 - Install docker on VM2 - Install Kubectl, Kops to setup a K8s cluster using VM3 - Create a CI pipeline that generates the packaged file (.war) as the Jenkins build succeeds on VM1 - Connect Jenkins to the Docker Machine over SSH - Transfer the Docker file and the war file to the Docker machine and run a build - Push the newly created docker image to Docker Hub using the docker push command after logging in to your free docker hub account (https://hub.docker.com) - Connect the Kubectl machine (VM3) to Ansible hosts for running SSH commands remotely - Create an Ansible Playbook in the Ansible machine for creating / updating the Kubernetes deployment using the newly pushed image from Docker machine to Docker Hub. Expected outcome: Our setup should create an End-to-End automation, starting from the developer pushing the code to GitHub repository to running the build on Jenkins followed by Docker. Once there is an update in Docker Hub, the Ansible Admin should be able to run the playbook for updating the deployment image on Kubernetes machines. Note: Use the tag “latest” for all new builds at docker

Project 3

Project:	XYZ Corporation is having difficulty in maintaining their IT infrastructure to manage their business. They wish to automate this process of configuring the entire infrastructure. Help them to create a script to design an infra containing multiple instances using Ansible and Terraform
Estimated Duration:	2 Hours
Module Coverage:	Ansible ,Terraform
Steps and Explanation:	When the team is in need of an infrastructure, they should be able to call a template file that can create multiple instances and configure them. In order to create this setup on cloud, first we need to start a VM and install the following tools required for this project. The list of tools that we require are given below: ● Ansible ● Terraform In the VM ● Install the tools required one by one ● Configure the playbook and terraform file required to create and configure new instances ● Execute terraform file to create new instances and pass the IP addresses of the new instances to the Ansible hosts file ● Execute the playbook to configure the newly added instances Expected outcome: The new instances created using the terraform script should be re-usable for repeated usage as per requirement. Ansible should be able to work on them without any difficulty.

Appendix-I: Sample Project Report

Projects Reports should contain the steps and the relevant screenshots. Follow the below example to have a clearer idea.