

**GURU NANAK DEV ENGINEERING COLLEGE, LUDHIANA**  
**DEPARTMENT OF INFORMATION TECHNOLOGY**

*Report on*

**The TEQIP-III Workshop on DevOps: Software Architecture**  
**[DSA-2021]**

*(conducted on 25<sup>th</sup>, 27<sup>th</sup> to 29<sup>th</sup> January, 2021)*

The Department of IT, Guru Nanak Dev Engineering College, Ludhiana organized a four-day workshop on “DevOps: Software Architecture” (DSA-2021) on 25<sup>th</sup>, 27<sup>th</sup> to 29<sup>th</sup> January, 2021. Dr. Kamaljit Kaur (Assistant Prof., IT) and Er. Parminder Kaur Wadhwa (Assistant Prof., IT) were the Coordinator and Co-Coordinator of the workshop respectively.

On 25<sup>th</sup> January, 2021 (first day), the faculty members of IT department gathered in HPC lab at 10:00 am. The online google meet was started. Dr. Kamaljit Kaur introduced the expert of the workshop, Mr. Vipin Gupta. He is BE, Red Hat Certified Security Specialist (RHCSS), Red Hat Certified Engineer (RHCE), Certified Ethical Hacker (CEH), Cisco Certified (CCNA), Microsoft Certified (MCSE, MCSA). He is running his own companies in Punjab entitled as U-Net Solutions and U-Net Labs Pvt. Ltd. and is specialized in DevOps. Dr. Kiran Jyoti (HOD, IT) welcomed the expert and all the participants. The 20 faculty members and 25 students (UG) from the various departments of Guru Nanak Dev Engineering College participated in the workshop.

*On day 1 i.e. 25<sup>th</sup> January, 2021*, the introduction to DevOps and the tools required to implement it were discussed. DevOps was compared with agile and waterfall software development models. The Version Control System (VCS) was introduced. The demonstration of how to setup GIT server, how to create and initialize repositories was given. The ways to handle local and remote repositories were also shown.

*On day 2 i.e. 27<sup>th</sup> January, 2021*, the concept of virtualization and hypervisors were discussed. The concept of dockers was discussed. Then the expert demonstrated how to install docker, pull images, create and manage containers. The launching of apache and nginx web servers was discussed. Mr. Vipin also explained how to link container port with host port

*K. Jyoti*  
*29/1/2021*

*P. Wadhwa*  
*29/1/21*

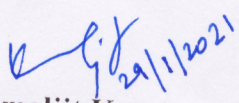


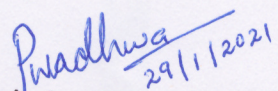
in dynamic and fixed mode. He also demonstrated how to use of ephemeral and persistent storage.

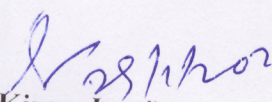
On day 3 i.e. 28<sup>th</sup> January, 2021, how to work with database containers was covered. The dockerfile and dockerfile directives were discussed. The expert demonstrated how to create different dockerfiles, custom docker images, tagging of images and how to upload docker images to docker hub. The installation of docker-compose and how to deploy wordpress application using docker-compose was also covered.

On the day 4 (last day) i.e. 29<sup>th</sup> January, 2021, the installation of docker on Ubuntu was demonstrated, Jenkins was discussed in detail and its integration with other technologies was demonstrated.

The students and the faculty members gained the insight and had hands-on practice of the latest technique "DevOps" through this workshop.

  
(Dr. Kamaljit Kaur)  
Coordinator, DSA-2021

  
(Er. Parminder Kaur Wadhwa)  
Co-Coordinator, DSA-2021

  
(Dr. Kiran Jyoti)  
HOD, IT