Work Report: Summer Internship

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Android Studio

- Installation and Introduction
- Learnt basic Android Studio using Tutorials
- UI Designing, Activities, views etc.

Android Studio - App 0.0

- Built a trivial app to learn about Android Studio
- App has a basic UI with several features like text boxes, buttons, few activities..etc
- An app that shows an activity (a single screen) with a text field and a button.
- Starts a new activity to display the message when the user taps **Send**.

Task 1 : Learnings and Overview

- Introduction to Java
- Introduction to PHP
- Introduction to MySQL
- Built an introductory app on Android Studio.
- Setting up web servers on our localhosts (Apache)
- Creating and editing MySQL databases
- Linux Command Line

Task 1.0 - Google Cloud

- Created a VM instance on Google CLoud.
- Installed LAMP stack and installed backend of Start App.
- Modified the installation instructions file at the backend for smooth installation.
- Connected backend to Mobile Device.
- Added SSH keys for SSH/SCP purposes.
- Configured Firewall Rules for port accessibility (Task 1.2)

Task 1.0

- Built an app with simple login interface using PHP and MySQL.
- Login information is stored in the MySQL database.
- https://github.com/pawangoyal137/Bifurcation-of-ports
- Modified to provide registration functionality.
- Backend Code and Database is on our Google Cloud.
- User info is checked upon login request.

START App - Deployment and Familiarisation

- Installed and set up LAMP server
- Deployed START backend on cloud server as well as local machine.
- Tweaked backend deployment instructions file.
- Familiarisation with backend : backend code, database, dummy surveys etc.

START App - Migration

- Set up Rclone on cloud and local machine linked with Google Drive
- Edited Crontab for automated backups.
- Rsync mirrors backend code to Google Drive (incremental copies) sorted by Date/Time.
- Added Files,Code or database dumps is sent to G Drive instance.
- Deleted content gets removed from GDrive instance and is stored in archives folder for customised backups.

Task 2 - Port/Name Based Hosting on The App

- Before redirecting to main code, replicated required functionality on self-made App.
- Set up multiple databases and linked them with different ports.
- Add User/Login User worked as expected using port numbers.

START App - Database Segregation

- Problem Description : Configure Apache and debug backend code which allows hosting more than one organisational database on a single production server. Implementing virtual hosting with Apache can help save costs on server maintenance and administration.
- The apps connecting to the different databases of different organisations should not be able to connect to other org's database even with correct credentials.
- Minimum duplication of resources for adding a new organisation.

Steps

- By default Apache listens for incoming connections on port 80. For port-based virtual hosting, we need to tell Apache to listen for IP address xx.xx.xx.xx on port 80 and for IP address xx.xx.xx.xx on port 8080.
- To set up multiple ports, you need to edit the httpd.conf file:

sudo nano /etc/httpd/conf/httpd.conf

- Add/edit the following lines:

Listen xx.xx.xx.xx:80

Listen xx.xx.xx.xx:8080

Then : sudo systemctl restart httpd

START App - Database Segregation

- Solution : Set up port based Apache Virtual Hosts.
- Configure Apache to listen on each of the ports you want to service.
- Set up a Virtual Host configuration for each port you want to service.
- Tweaked Firewall to allow for required ports to listen.
- Configured PHP files at the backend.