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A.K.A “GROUP 11”

Technical requirements

Topfit Application

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# **Technologies**

## Overview

|  |  |
| --- | --- |
| TECHNOLOGIES | Details |
| MySQL  (database) | * It is easy to use * It is free because our application is free * There is no need to train the team members since everyone is familiar with this technology * It is well-recognized in the industry for its high performance * It is flexible enough to store changing datasets * It is reliable to protect the users’ data |
| Android Studio  (IDE) | * It is free because the application that is going to be built is free * The team is developing an application in Java that’s well supported with this environment * There is no need to train the team members because everyone is currently enrolled in the Android Development course * It is stable and has an intuitive graphical interface * It is more popular than Eclipse IDE and had extended functionality * It support both Android Development languages – Java and Kotlin – should the need arise to switch between the two |
| PHP  (Programming Language) | * It is a popular and wildly used technology for supporting the application backend * PHP performs well in conjunction with the mysql database selected for the project * It provides a variety of built in functions * PHP has a comprehensive (English-like) syntax. * The team utilizes PHP to provide API services and connect the application layers |
| Java  (Programming Language) | * It is an open source programming language * It can used in many kinds of devices * It supports OOP principles for further code reuse * It is platform independent, should the team extend the application support for iOS. * There’s no need to train team members, thus allowing the developers to manage their time efficiently * It is a well-documented language, should the team need additional research |
| Laptops  (hardware) | * The developers will use their own laptops since they are well-familiar with the device configuration * It is convenient to carry own laptops everywhere and continue from where the project was left off, without additional setup * It allows for on-the-spot testing * Development from the team’s laptop allows for easy communication and file sharing (TeamViewer, text messengers, etc) |
| Android Smartphone  (hardware) | * It can be conveniently used to test the code instead of the emulator provided by the IDE * Using the real piece of hardware allows for more thorough testing compared to the emulator * Testing results can be more accurate since the application can be tested in different circumstances (outside the development site) |

## MySQL Database

One of the reasons why the team decided to use MySQL for the project is because it provides data security and high performance. In fact, MySQL is globally renowned for being the most secure and reliable database management system used in popular web applications like WordPress, Drupal, Joomla, Facebook and Twitter. With MySQL being able to scale on demand, it allows to persist the continuously growing user data.

## Android Studio IDE

The main reasons why the team decided to use Android Studio IDE is because it provides fast deployment of fresh builds that make it easy to apply changes to the existing app code. It also provides a feature-rich graphical editor that allows to envision the screen that will be presented to the user. Code changes can be witnessed in the emulator or physical device in the real time without restarting the app or building a new APK (Android Application Package file) every time.

The virtual testing environment is faster than a real device and has a user-friendly UI. Sensor controls are effective to read every move of the developers which is especially advantageous since the application reads the data from the location sensor. One more reason to adopt this IDE for the project is that it supports a wide variety of libraries which will let combine the application layers.

## PHP

First reason why the team selected PHP programing language for constructing the API because its significantly fast. Being a server-side language, PHP uses its own memory. Thus, the workload for the server gets reduced automatically, which results into the faster processing speed. It reduces the development time when it comes to the web apps and smartphone applications. Second reason why we decide to use it because there’s comprehensive supportdocumentation that is easy to access.PHP widely use in the industry, so a large community is formed. There is need not worry about getting stuck: there is always someone to seek help from.

## Java

Java programing language was selected because it has a huge collection of open-source libraries, which ultimately help reduce development time and allow for code reuse. These libraries include Apache Commons, [Google Guava](https://github.com/google/guava), JUnit and other powerful development tools that make this language easy to use and provide a variety of features. The Android SDK offers standard Java libraries that handle data structuring, math operations, graphics, networking and more. Another point in favor of Java is it being the primary option for developing native Android applications. It manages to fuse the powerful features of the classic C and C++ programming languages, while eliminating many of the drawbacks of the two.

# **Learning Plan**

Developing a learning plan helps the team identify the knowledge they are lacking for completing the project and provides the guidelines for obtaining the required information. The plan includes the learning goal - the competency to be developed or work objective to be achieved. The, the activities to reach the goal are specified, followed by the time limit and the benefit it will bring to the project. *Group 11* has developed the following learning plan:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Learning Goal** | **Activities** | **Timeline** | **Team will be able to…** | **Team Members** |
| **Learn to structure the database with MySQL** | 5.5 hours of video session, 2 hours of practice with online tutor (1) | 2019/11/01  9 AM  -  2019/11/01  7 PM | * create a database that can survive real life conditions * eliminate the errors faster as they occur * create efficient, clear MySQL queries | Nadia Mokhireva  Milad Esmailpour  Parisa Khataei  Vladislav Bordiug |
| **Learn to use APIs to connect the database to the GUI** | 38 hours of video materials,  3 articles,  23 exercises (2) | 2019/11/04  -  2019/11/11 | * create clean URLs and remove the .php extension from files * find a more efficient way to debug * create pagination for a better user experience | Nadia Mokhireva  Milad Esmailpour |
| **Learn about stacks, heaps work and the “garbage collection”** | 3.5 hours of video session and 3 hours practice with online tutor (1) | 2019/11/19  9 AM  -  2019/11/19  8 PM | * optimize memory use for better application performance * integrate the different technologies within the application | Nadia Mokhireva  Milad Esmailpour |
| **Learn Bootstrap 4 & JS widgets with a sandbox environment** | 5 hours video tutorial (3) | 2019/11/15  -  2019/11/16 | * improve user experience with high-quality Bootstrap 4 interfaces * replace CSS with SASS and thus accelerate front end development | Vladislav Bordiug |
| **Learn to work with web services** | 34.5 hours of video, 33 articles,  4 hours online tutoring (1) | 2019/11/20  -  2019/11/27 | * create custom URIs * persist data in a database with Entity Framework Code First migrations * create services | Milad Esmailpour |
| **Learn how create secure form validation using Regular Expressions** | 3 hours of video session,  1 hour of online tutoring (2) | 2019/12/01  10 AM  -  2019/12/01  3 PM | * manage CMS Based Projects to advance communication and task distribution within the team * build fast and secure CRUD applications to provide decent user experience | Nadia Mokhireva |

**Resources** that will be referenced for learning:

1. <https://www.codecademy.com/>
2. <https://www.udemy.com/>
3. <https://www.youtube.com/watch?v=hnCmSXCZEpU>