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Internal Project Fall 2023 Proposal

1. The benefit it may bring.

* It came up from the idea of helping the UNH students to deploy their project on a free platform when working with Django. Nowadays, with the rapid growth of technology, the world is gradually replaced by virtual models, AI, and computers. Therefore, its data and resources are no longer stored in physical form, most of them now stored in the cloud (virtual storage). This project/research will go deeper how to work with the data and deploy students project on clouds. The benefits of it may be for the individual themselves or in general for students.

+ For individuals, this project will help students understand more how a database operates, its workflows and immigration of data. Especially, this project emphasizes on Django and its backend. In particular, this project will be using two clouds platforms: Azure and Firebase. Because of the difference of their database engines, this will help students learn how to handle the data’s transfer and immigration. Helping students able to deploy their projects on any could platforms.

+ For general, this project/research will save money and optimize their expenses. For a couple years ago, students used Heroku as their project’s deployment, but the Heroku is no longer free. Therefore, Heroku is not an option for students now, take advantage of Azure (from Microsoft), students will get free account when log in under student’s identity, and as well as Firebase (from Google).

1. The result of the project.

* There are 3 learning objectives for this project: Deploy a project to Azure, deploy a project to Firebase and get me learning database and its system.

+ Deploy a project to Azure: the goal of this project/research is to deploy to Azure platform, not only successfully deploying as production, but also having project’s data to be transferred to Azure cloud.

+ Deploy a project to Firebase: Likely deploying to Azure, deploying to Firebase platform must be accomplished at the of the semester.

+ Learning database and its system: for this learning objective, there will not be a particular goal to achieve, but the experiences at the end of the project is something I will obtain.

1. The idea of the project.
2. Using my old project:

* This will save a lot of time, so that I can focus on working on Django’s database and learning Azure and Firebase. Therefore, I don’t need to build from scratch, it is also very helpful for me because I have a couple projects that can be used for deploying testing on the could servers.

1. Learning about Azure and its environment:

* Azure is a new platform for me, in spite of I have heard about Azure during academic time, I have not used Azure on my project. Therefore, learning about Azure and getting used to its services is essential and time consuming.

1. Learning about Firebase and its environment:

* Likely Azure, Firebase is also new to me, this cloud platform is owned by Google, and it has many useful services as Azure to getting to know such as: Test App, Cloud Functions, …

1. Learning about Django’s database:

* Students who works on their project and just focus on developing applications, will not need to care about its database, because Django facilitates users by doing and taking care of their database, the users would just focus on the development. However, to be able to deploy the project on many platforms, I have to understand Django’s database, because the database engine is different between these platforms, they will need to be synchronized and transfer properly.

1. Set up environment:

* Not also save time at the end, this is also one of the important criteria. The setting up environment work needs to be sequential and proper. One deviation will easily affect the whole project. Set up environment work such as: download needed packages, creating web app and database server and making sure its components are set up properly. Likewise, re-set up Django’s database is also required, that ensures data’s transferring and immigration between Django and those cloud platforms conveniently and easily.

1. Deploying testing on Azure/Firebase:

* This is the testing action, I put this in because it is required to check/make sure the environment set up part was properly, and I could use the same options to deploy the real project at the end of the semester. This also saves time to avoid the futured bugs, and because of the difference Azure’s environment and Firebase’s environment. Luckily, I have an old Django’s project that does not require database, take advantage of this, I can test the deployment on Azure and Firebase initially without thinking about database at this time, and just focus on setting up the environment.

1. Transfer/migrate database from Django to Azure/Firebase:

* This is the critical criteria and determines the success of the whole project. Once I got everything above, transfer database is the next thing I need to focus on. This part will mark the database from Django to Azure/Firebase is successful of not. Transfer database successfully allows us to manage the data on Azure/Firebase, the project would be accessible from anywhere, it also ensures that the data is not missing or damaged.

1. Deploy project on web applications as production:

* This is the final part of the project. When everything is guaranteed, deploy the project on Azure/Firebase as production is quite easy. Making the project published and can be accessible from anywhere, and this is also the goal of the whole project.

1. The resources that will be needed.

* There are some resources will be needed for this project (because I am not quite sure what I could need eventually):

+ Azure: Cloud platform target.

+ Firebase: Cloud platform target.

+ Python: The main programming language for this project.

+ Django: The Python’s web framework.

+ Miniconda: To get required packages, run server and execute command lines on a virtual environment.

+ GitHub: To update the project.

1. The estimate time it is proposed to take.

* The total hour of this project is estimated to be about 150 hours. I decided to spend 10-15 hours every week on this project (roughly 3 months).

1. First two weeks (09/04 - 09/17): Get to know with Azure.

* Because Azure is new to me, getting used to Azure and reading its documentation is time consuming. Not only that, but I also have to practice their services to have a comprehensive view about Azure and its environment. If everything is guaranteed, I can deploy a test deployment on Azure with my simple project which does not require database.

1. Next two weeks (09/18 - 10/01): Get to know with Firebase.

* This procedure will be the same as Azure, and because Firebase’s system and environment are different from Azure, it will be time consuming to get used to with these stuffs. Like Azure, I can deploy a test deployment on Firebase with my simple project which does not require database.

3. Next three weeks (10/02 - 10/22): Re-organize my Django’s database.

* The project that I will use to deploy at the end of the project has a complex database, I have them done before but I have not deployed this project yet and I was only focusing on the development process since Django handled for me the database stuff. This part will require me to take a look back at its database and re-organize it. This will take time because I have to know Django’s database behaviors and set them up properly to prepare for the next step, which is transferring step.

4. Next four weeks (10/23 – 11/19): Transfer/migrate database from Django to Azure/Firebase.

- This part is the most important part, so it will need the most time to accomplish because everything must be accurate and ready for synchronization. This time consuming also includes encountering bugs, errors, solving and fixing it while transferring data. This part will check if my project is successful or not.

5. Last two weeks (11/20 – 12/03): Deploy the project on Azure/Firebase.

- This is the final part of the project. When everything is guaranteed, this part will be the easy one to accomplish. Deploying the project and making it alive to check the project successfully.

1. The concerns/difficulties.

* There are some concerns for me for this project, because Azure and Firebase are two new cloud platforms that I will be using on this project. There will be some difficulties fixing/debugging while data has conflicted. As well as their components when set up the environment, may require me read and go through many of documents to process it. Additionally, Django’s database and database generally were a thing that I did not care about much during my academic time. Getting to know database’s behaviors and handling transferring are two things different to be accomplished.