



CLOUD COMPUTING

CODERGRAM

Arsene Andreea
Miron Robert-Andrei
Simion Andrei
Török Tibor Dániel



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1 Introduction

The app involves implementing a multichat (or, if you will, a live forum) which covers various topics, including:

- programming languages (C++/Java/Python), as well as Q&A regarding them
- hardware (peripherals/PC components)
- license related questions (antivirus, steam keys, other types of software) which will be available for purchase in the app shop

In the app, users can buy from the shop software/hardware components, online courses that may or may not be shown to them based on the recommendations. Moreover, they will be able to pay either in a normal way (by cards/cash), or with cryptocurrency (for anonymity).

The app will have a recommendation system based on Machine Learning (besides the recommendations from other users) which will analyze the user's behaviour on the forum in order for it to suggest more products.

There's also a way to encourage experienced users to answer any topic related questions. The member whose question is answered will be able to give fidelity points to the best answer, points that could be used as price discounts on the store items.

2 Case study

Reward System

Since our application has both a store and a chat platform, we decided to connect them through a reward system. The more involved users will benefit from answering IT-related questions with discounts in the shop. This way we can assure that everybody who lands on our platform searching for answers will eventually receive a quality solution to their problem, and those who take their time providing such solutions will be rewarded by making it easier for them to purchase the desired hardware in the shop.

We strongly believe that, this way, the application will attract many users all over the world, who are willing to exchange their knowledge in return for points, thus turning our idea into a successful project.

PC Garage

PC Garage is a similar website regarding the store part, and it gave us the main idea for our project. The reason we think our store can attract more clients than PC Garage is because of the discounts we can provide. We also give our buyers the option to pay in cryptocurrency, and as far as we know, we are the only hardware store in Romania to provide such a service.

StackOverflow

StackOverflow can be seen as an inspiration for our application as well. As an usecase, if a user wants to come for a coding problem in a certain programming language, he can ask for tips and give fidelity points to the best answer. After that, our AI may recommend a cool course for that programming language to the user.

The reason we think our chat could be a better experience for the users than StackOverflow is because people can answer their questions in real-time, without them having to wait a day or more to get the answer.

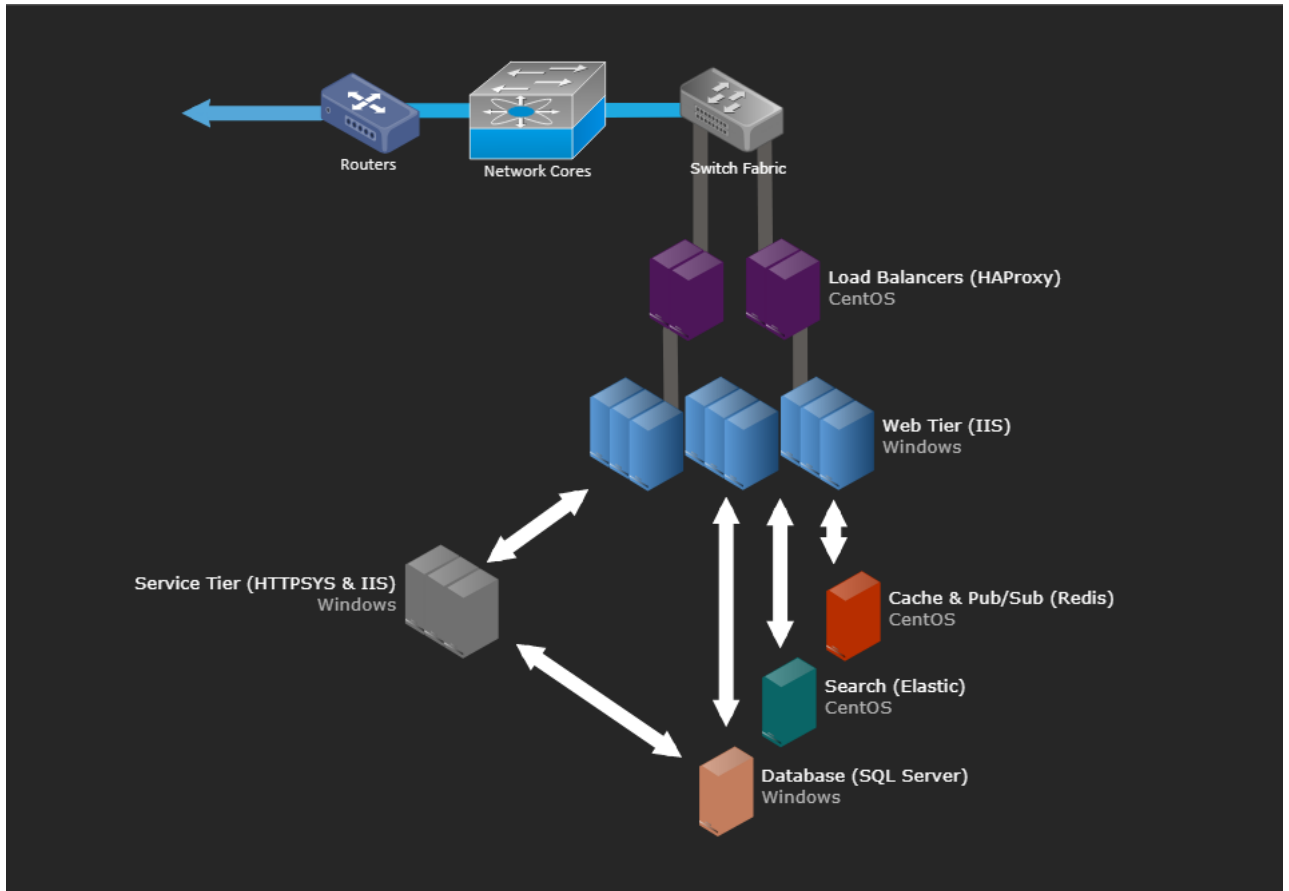
Any chat platform

Amongst everything mentioned, our chat platform has also a room where developers from all over the world can get together and simply chat about current IT news. Here we do not provide rewards and we do not encourage users to ask hard IT questions because this will defeat the purpose of the room. Sure, there are a lot of chatting websites to compete with ours, but when you combine it with the other functionalities of our application, the reason developer might prefer ours speaks for itself.

Success or failure?

Based on everything said, we believe that our application is a success, because it combines a number of things that ensure quality, reliability and good user experience. At the moment, on the market, there is nothing quite similar to our idea, and since our project is made by developers for developers, we understand first hand why people who share our passion will love being a part of our community.

3 Technical Details



Developer:

- HTML5
- C# using ASP.NET Model-View-Controller
- Microsoft SQL Server

Marketing:

- Google Analytics
- Google AdMob

Marketing Approaches:

- Advertisement
- Hosting advertisement services

4 Cloud Solutions

4.1 Cloud with JavaScript & Python

Both Google and Microsoft cloud platforms support many programming languages such as Python, JavaScript and Java. The reason we chose JavaScript and Python as the main languages for our application is because they provide easy connection to all the services we are utilizing and make the use of the said services much simpler. Because of this, the error-handling is not as time consuming and we can project the time to developing further.

It is worth noting that our team has more experience in working with these programming languages compared to others and thus, the process of building our application ran smoothly and with minimal problems.

4.2 Azure DevOps & Pipelines

Every versioning platform has its perks and choosing one of them can be a hard task, but we decided to go with the Azure DevOps service because, amongst other points such as easy to use and great user experience, it is working perfectly with the Azure Pipelines, which is a very important service in the life cycle of our application.

Azure DevOps provides great control over the entire application and the deployment part, laying out tools such as deployment testing.

4.3 Azure Active Directory

For a faster log-in and registration, we are using Azure Active Directory, which provides a log-in service using the already existing Google Mail account. Since Google already takes measures to make sure that the owner of the account is a real person, this service is a real help to us when managing our users.

4.4 FireBase

Since real-time data handling is crucial for our application, we were looking for a reliable, fast database which is easy to manage and understand - functionality-wise.

For these reasons we chose FireBase as our best option. Not only that it is very popular amongst other developers and applications, but when it came to comparing it to the Azure database, FireBase won the contest because of a few key points:

- the functions provided for data handling are very easy to understand, use and maintain. For this reason we ended up with clean, readable code that could be easily modified without disturbing the rest of the program;
- the way that FireBase stores data inside documents is fool-proof and we compared this to Cosmos DB, which did not provide a field for the data type, and we could easily run into problems that could be avoided by using FireBase;

4.5 CDN

Since our application targets users all around the globe, the use of CDN is a powerful solution. With Azure CDN, we can cache static objects loaded from Azure Blob storage, a web application, or any publicly accessible web server, by using the closest point of presence (POP) server. It lets us reduce load times, save bandwidth, and speed responsiveness which would make a better user experience.

4.6 Azure functions

This service is a very powerful tool that can be used in many ways such as building an api that doesn't have to be always online but only when we request things from it.

4.7 Spell checking, translating & word-ban

Using Azure services we want to make sure that our users will have their IT related issues solved as quickly as possible, and for this reason we provide a spell-checking service. On top of that, harassment, slurs and swears are a no-go for our website and we will not tolerate such behaviours.










Another issue that we want to solve is the fact that our users come from all over the world and some of them may not be fluent in English, so we are using a translate service to ensure that everybody can use the chat, because love for IT is not only for English speakers.


4.8 Azure Machine Learning

In regards to the store, we want to give our users the best experience they can possibly have, so we are using machine learning algorithms to recommend them items based on recent searches and purchases. We understand how hard it is to make a choice when the amount of items is overwhelming, and we bring it to ourselves to help our buyers make the best decision.


We will also recommend to our users specific courses to buy from the store, based on the chat rooms they spend most time in and on the questions they ask.

5 Business canvas

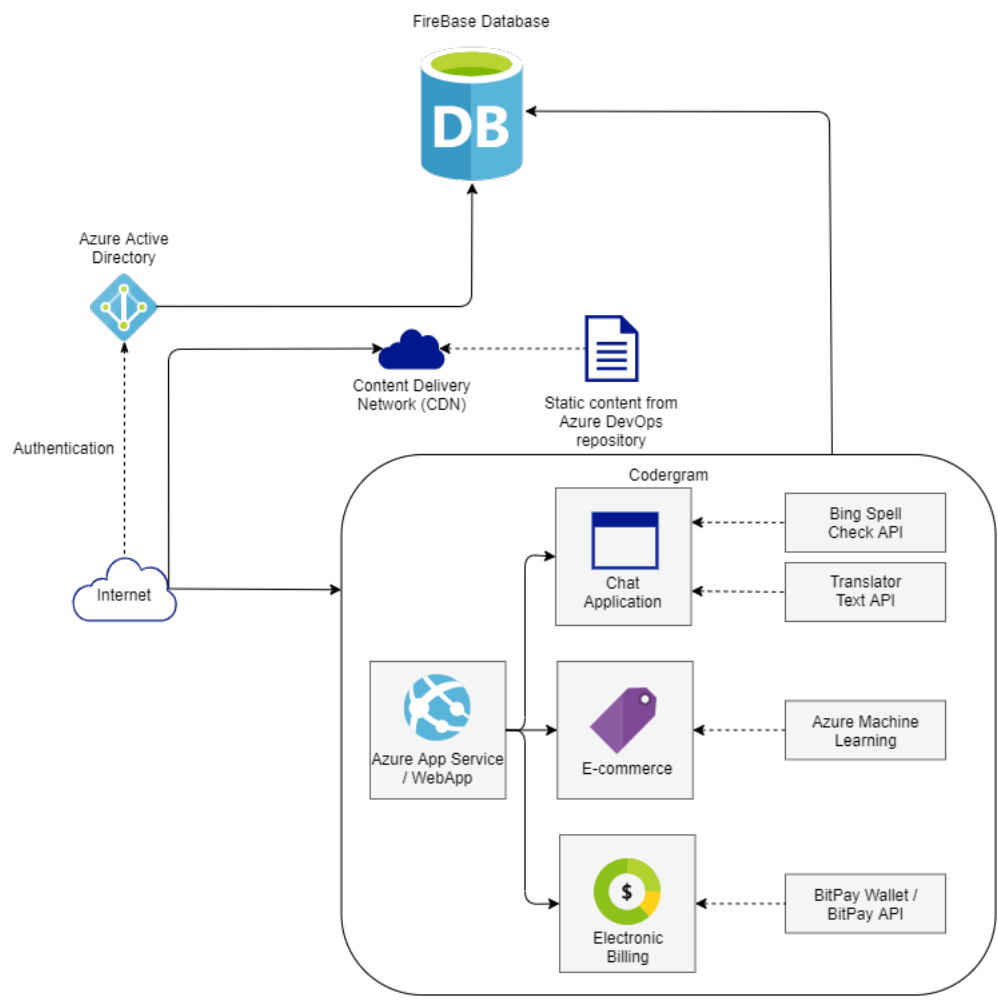
The Business Model Canvas		Designed for: CODERGRAM	Designed by: DEVTEAM	Date: 14.05.2020	Version: V1.0.1			
Key Partners  <ul style="list-style-type: none"> - diferite firme de IT (Microsoft, Bitdefender, Endava, Ubisoft, Blizzard) - magazine de piese hardware (PCGarage / Flanco) - dezvoltatorii de IDE (Eclipse, IntelliJ) - freelanceri (prin administrarea chaturilor si a forumurilor) - Azure (resurse gratuite in schimbul reclamei) 	Key Activities  <ul style="list-style-type: none"> - posibilitatea de a discuta in realtime pe chaturile puse la dispozitie - acces magazin online cu posibilitate de retur a componentelor hardware - serviciu cu clienti prompt si profesional - suport dat de alti utilizatori experimentati referitor la topicul cautat 	Value Propositions  <ul style="list-style-type: none"> - conectarea oamenilor in vederea rezolvării problemelor de natura software - forum live Q & A - accesibilitate pentru clienti in contextul achiziționării diferitelor produse - livrarea promptă a produselor, bazată pe relația timp - loc - chat live cu posibilitatea de a primi răspunsuri oricând de la alți utilizatori 	Customer Relationships  <ul style="list-style-type: none"> - nu implica costuri - bazata pe incredere si respect reciproc, precum si pe seriozitatea cu care echipa noastra trateaza angajamentul - interschimb de informatii la nivel colectiv in timp real 	Customer Segments  <ul style="list-style-type: none"> - persoanele care intampina probleme in procesul de implementare - persoane care doresc sa gaseasca atat produse software cat si cele hardware - pasionatii de tehnologie - incepatorii in programare 	Key Resources  <ul style="list-style-type: none"> - echipa de dezvoltare (resurse umane) - resurse tehnologice pentru app web (server hosting, data storage, servicii cloud) - serviciul de curierat (resursa umana) - suport clienti (resursa umana) 	Channels  <ul style="list-style-type: none"> - website - social media (YT, instagram, twitter, facebook) - servere de discord care au tematica software sau hardware - reclame TV sau pe diferite site-uri / forumuri - emailuri informative 	Cost Structure  <ul style="list-style-type: none"> - dezvoltarea aplicatiei (implementare si mentenanta) - promovare in media - serviciul de curierat (resurse umane) - servicii cloud (Azure / Google) - serviciul de customer service (resurse umane) 	Revenue Streams  <ul style="list-style-type: none"> - sponsori - taxa de procesare (la comenzi) - reclame pentru alte aplicatii - donatii


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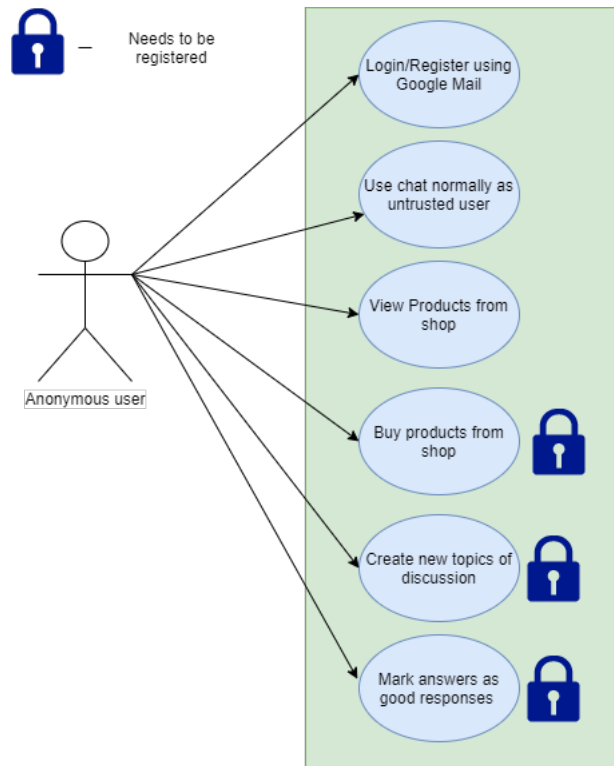
DESIGNED BY: Strategyzer AG
The makers of Business Model Generation and Strategyzer

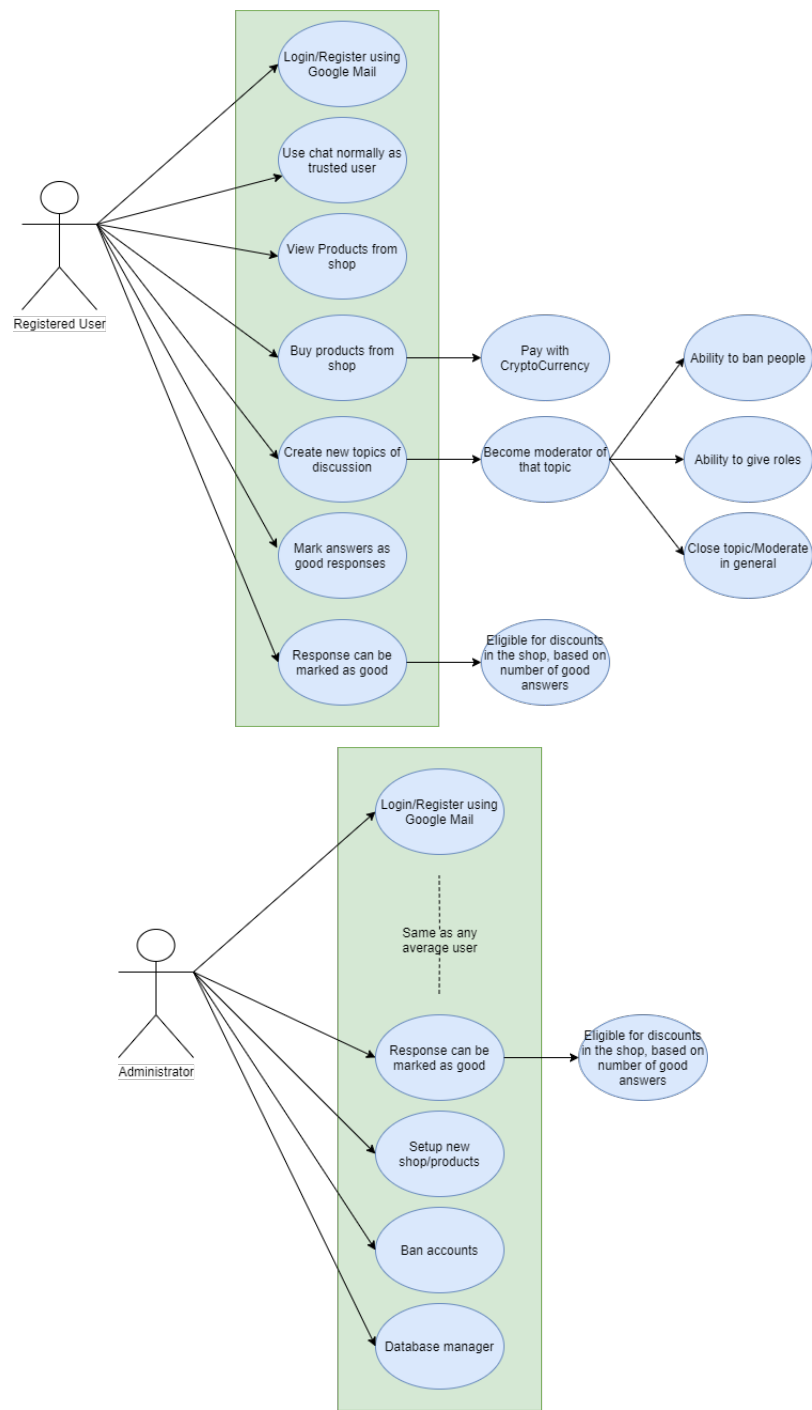

Strategyzer
strategyzer.com

6 Architectural diagram



7 Usecase diagrams





8 APIs

Bing Spell Check is easy to call from any programming language that can make HTTP requests and parse JSON responses.

Translator Text API can easily detect multiple languages and translate accurately, so it was an easy choice for us.

BitPay was our choice for cryptocurrency payments and billings since its easy to setup and their documentation is comprehensive yet simple to understand for any average developer.

FireBase. FireBase API is to the point and creating and editing documents is fool-proof. Since real-time data handling is crucial for our application, we were looking for a database with an API that is easy to use and understand, such as the FireBase one. Compared to other databases's APIs, we thought that this one better suits our application.