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Concept of Operations (ConOps) Content

1. Introduction

1.1 Purpose

The final software purpose is to simplify the usage of dating apps considering the user's preferences. It analyzes the data from the apps and presents only the satisfying results to the user, filtering the extracted data using advanced algorithms. This document is made for business stakeholders as well as for everyone it may concern.

1.2 Output

As an output we should have a software that is able to find appropriate matches in different dating apps based on specified parameters. The final application should operate relatively fast to make the user experience better. The software should be maintained after the release of the product to the market.

1.3 Executive summary

Our product aim is to satisfy the needs of people for finding attractive mates. We have a big advantage in the current market over our competitors because our software is unique.

2. Referenced Documents

Our team has analyzed different sources and science fields *during preparing our app.* We have used:

- docs.flutter.dev
- aws.amazon.com/ec2
- postgresql.org/docs
- tensorflow.org/responsible_ai

- tensorflow.org/api_docs/python
- Donald Knuth - Art of computer programming vol. 2-4

3. Current system or situation

No such systems exist at this time. Now, people who want to find the right pair online have to spend a lot of time in order to analyze profiles manually, view all the photos, but even this does not guarantee success, because the human eye is not often able to catch Photoshop and just small details.

3.1 Background, objectives and scopes

At the moment, the online matching system is not perfect, as it does not take into account the human factor. The system targets all people, especially people with weak social skills, lonely people and those who do not have enough time to search the real world. This system is relevant as people spend more and more time online. The main purpose of using the application: find a couple, new acquaintances. The main goal of the developers: to make money, to provide users with the optimal matching algorithm. The main business stimulants: the need of people for a pair, which allows you to constantly attract new clients, as well as the ability to show advertising to a large, solvent audience.

3.2. Operational Policies and Constraints

Operational Policies: the app can not be used by people without documents, people under 18, those who had problems with the law.
Operational constraints: Limited sources of data, as we extract the data from the dating applications' database and cannot request the full database.

3.3. Description of Current System or Situation

3.3.1 Tools, hardware and software used to operate the existing system:

3.3.1.1 Database Hosting

Usually Amazon Web Services[1] or AWS Cloud

3.3.1.2 Recommendation engine

The profiles that a user sees on Tinder for potential matchmaking, are based on the function of this recommendation engine, and this forms the entire foundation of using this app.

3.3.1.2.1 Users activity:

recommendation engine focuses extensively on the users' active status, and finds out how actively that person is using the application. The more active a user is, the better will be his/her positioning as per the recommendation engine.

3.3.1.2.2 Collect tags:

recommendation engine will recommend a person's profile based on the data collected about him/her, and once logged in via Facebook, this becomes seamless. Tinder's recommendation engine will automatically collect information such as age, location, distance, gender preference, visited places, likes, dislikes, friend's circle, and more via Collect Tags and uses this information to recommend other profiles for the user.

3.3.1.2.3 Rating Of Users:

Once the information is collected, and the users' activity status is monitored, Tinder allocates a rating for every profile, say between 1 to 10. And then groups the users, under these ratings. In case a profile has been rated 3, then the recommendation engine will suggest other profiles that are also rated 3, and ensure meaningful matches.

3.3.1.2.4 User Actions:

Tinder's recommendation engine will find out about the users' actions related to swipes: If the user is extensively swiping right, then it means that that user is not contributing to the purpose of the dating app, that is to rate and filter. At the same time, if the user is only swiping left, then that too is bad. Hence, the recommendation engine will rate those profiles high, who have the perfect balance between right and left swipes.

3.3.1.2.5 Maintaining the Balance:

In case a particular profile is getting too many right swipes, then that profile is hidden for some time so that the balance is maintained. Some term this as progressive taxation, for making it fair to all. At the same time, if a profile is getting fewer right swipes, then that profile is automatically boosted for some time, to induce fairness and balance.

3.3.1.2.6 Reply TAT:

Tinder's recommendation engine also finds out how soon a person is replying to a matched user, via Reply TAT or Turn Around Time. The sooner is the person is replying, it's better because that will denote the activeness of the user

3.3.2 Critical functionality

Swipe-Right:
If you like a profile, you will swipe right.
Swipe-Left:
If you don't like a profile, you will swipe left.
Match:
If both the profiles swipes-right, then it's a match.

Double Opt-in Communication System: Communication between two users can only start once both have swiped right one another. Hence, a double opt-in system for communication ensures more safety and more transparency.

Besides these user-centric actions, the mobile app provides the feature to view content shared by other users such as images, likes/dislikes, questions, and more.

For every user, it shows these information details: current age, distance from your location, mutual friends (via Facebook/Instagram), mutual interests between the users, and target description.

Lately, Tinder has introduced a few more features like Super Like & Boost, which are very interesting monetization programs to generate more revenues

3.3.3 Technical Properties

3.3.3.1 Fast Loading Via Low Latency: As soon as the user logs into the application, he/she is shown profiles of other users based on the recommendation engine's data, and this needs to happen real quick and fast. For fast loading of the profiles, the recommendation engine has low latency.

3.3.3.2 Shard Database: The database of the recommendation engine is not centrally stored, but shared globally, across different AWS servers for ensuring faster responses, and seamless storing.

3.3.3.3 Powerful Search Features: Recommendation engine supports a full-text search of the person's profile, for collecting as much data as possible, and making it easier for the users to locate the profiles they can match.

3.3.3.4 Data Transferring: For transferring data to the application, an HTTP interface or web socket is used.

XML/JSON for creating a structured data format.

In the next part of this series, we will understand the ElasticSearch mechanism of Tinder, that enables them to match the profiles based on the recommendation engine algorithm.

If you wish to create a dating app[2] similar to Tinder, then our dating app development company can help you. We have some of the most talented and experienced dating app engineers, who will understand your requirements, and accordingly design and develop a Tinder-themed dating app with robust functionalities and features.

3.4 Current Modes of Operation

For ideal app use we are describing necessary features related to our app.

HANDLING

There are three possible ways to use our app:

1) Normal handling;
2) Degraded handling;
3) Exception handling;

In the first case the user is familiar with a complex of basic program features. Person has a full pack of abilities related to creating/editing a user profile, adding photos, searching new users, sharing media files and text messages and so on.

MAINTENANCE

The app has usual new additional updates of different fields. For instance, changes of the design, modefiling quality of using app, privacy policy and many others. Updates can solve some possible errors and bugs. Plenty of changes depends on monitored users` wishes and problems. The last update dates at 14.10.2022.

3.5 Current users and Stakeholders

- The first type of users are the ones who the application is made for. We target the audience between 18 - 30 years old, who are adults seeking for a relationship.
- The second type of users are internal personnel. We have different departments, the biggest of which is the IT department. We have mobile engineers who maintain the application and deploy new builds,frontend and backend engineers, ML engineers, Product managers.
- The third and the final type of users are the company founders / owners, the C- Suite. They are the upper echelons of a corporation’s senior executives and managers. We have a CEO,CTO,CMO,COO,CIO.

3.6 Current Support Environment

There are few common ways of keeping in touch with the app support team. It can be possible to be released by email, instant support bot and phone number. Every dialogue has quite personal character and relies on the privacy rules of the community. Users can grade the level of professionalism

of their speaking experience with the support team and make a complaint on the certain person.

If the person is supposed to solve its problem, the support session will be over. If the person breaks the community rules during the support session, it will be over.

Support managers are equipped with modern devices for instant distant connection with users that requested help.

4. Justification and Description of Changes

This system is very outdated. Long selection process and a large number of online fraudsters scare away new users. A system that will be able to automatically determine its capacity on the basis of specific parameters and analyze large volumes of data for time and strength of customers. This sitema will allow customers to get maximum benefit by making a minimum effort

4.1 Justification of Changes

The new system has exactly the same goals and limitations as the current system, but it almost completely eliminates the human factor, allowing you to optimize all aspects of the application

4.2 Description of Desired Changes

4.2.1 automatic search
4.2.2 automatic data (profile descriptions, images etc.) analisis
4.2.3 automatic swaps
4.2.4 automatic check of recently registered profiles

4.3. Priorities Among Changes
automatic search - essential
automatic data (profile descriptions, images etc.) analisis - essential
automatic swaps - essential
automatic check of recently registered profiles - desired

4.4. Changes Considered But Not Included

Automatic check of recently registered profiles not included, since the need of documents to register account

5. Proposed System or Situation

5.1. Background, Objectives, and Scope

Our proposed system highly advances the existing products. The user no longer needs to wait for the dating app to find the match and scroll through the app to find the desired outcome. Insted, our goal is for the software to analyze the data extracted from the application and present the ready result to the user. The final result matches the user' expectations by 90%. This is possible due to highly advanced machine learning models we developed.

5.3. Description of the Proposed System or Situation

- Operational environment: at the beginning of the launch the user must have IOS as an operating system. The personnel required for maintaining the software are mobile as well as backend engineers.
- Capabilities, functions, and features of the current system: the software is able to analyze up to 30 GB of data. Moreover, garbage data after the filtering is stored in the separate database and can be accessed and presented to the user if desired.
- Cost of system operations: the cost of the production and maintenance of the software is moderate. The most expensive procedures are likely to be the cost of the web servers where the data would be stored and the computers able to run complex ML algorithms.
- Operational risk factors: AI doesn't produce the desired outcome and thus the end user is not satisfied.
- Provisions for safety, security, privacy, integrity: the user data is encrypted and no external user is able to extract that data. The employees must work carefully with user data in order not to share it anywhere.

5.4 Proposed Modes of Operation

There are 3 main modes of operations of our product:

1. A mobile app for the IOS operating system. This mode requires appropriate personnel such as IOS mobile engineers. Furthermore, this mode uses an applications store “App Store” for uploading new app builds.
2. A mobile app for the Android operating system. This mode requires appropriate personnel such as Android mobile engineers. Furthermore, this mode uses an applications store “Google Play” for uploading new app builds.
3. A website, the main function of which is to redirect users to the mobile versions of the app. However, the website will be able to display a short demo of the app in order for users to understand what our product is about.

5.5. Anticipated Users and Stakeholders

We expect our product to attract the users in the range of 18 to 30 years old. As far as we are concerned, this age range is the one who exploit the dating apps, which our application is based on, the most.
Anticipated stakeholders:

- Internal stakeholders: employees, manager, owners.
- External stakeholders: suppliers, society, government, creditors, shareholders, customers.

5.6. Proposed Support Environment

Our support environment are the applications stores, to which the app is deployed and later maintained via uploading new version builds.

6. Operational Scenarios

After downloading an app, a user should register an account with an official document in order to prove that the user is older than 18 and had no problems with the law. After that the user should specify all the desired parameters in order to obtain a perfect match. It is also required to download

at least 5 photos of people with preferred parameters, so that the computer could analyze it. Then the user can press the start button and after the computer finishes analyzing data it starts to search for perfect matches. When the computer finds one, the user will receive a notification. If the user is satisfied with the result, the user may contact this person. Otherwise, users can start the search once again.

7. Summary of Impacts

There are few ways to be influenced by different updates that can vary in the time of release and groups of people that keep in touch with them.

7.1 Operational Impacts

7.1.1 Changes in Procedures

The system overall may contain some unobvious issues related to its workflow. The system developers take responsibility for fixing any bugs within the system reported by the users or found by themselves.

7.1.2 Impact on users

Users become familiar with fresh impacts and data due to the quality of the responsible activities of the team. Users get new information about new data from messages and app notifications. It is possible to read new additional information and grade upgrades.

7.1.3 Changes in operational budget

The app has some financial needs in order to fulfill the license's warranty by maintaining the app and ensuring the robustness of the system.

7.2 Organizational impacts

7.2.1 Modification of responsibilities

This includes rescheduling of working ours for some of the staff of the maintenance team in order to troubleshoot urgent issues that may occur anytime.

7.2.2 Addition or elimination of job positions

The system requires some additional maintenance staff that shall keep the application up-to-date and resolves issues, while the core development team may move to other projects.

7.2.3 Changes in skill levels, position identifiers

The skill levels of each developer must be distributed by assigning a proper task for them, the organization ensures this by the following. The initial development of the software requires a highly qualified development team. Contrarily, minor updates and fixes may be done by fewer experienced developers.

7.3 Impacts during development

7.3.1 User and support involvement in reviews and demonstrations, evaluation of initial operating capabilities, and evolving versions of the system, development or modification of databases, and required training

Any user is welcome to share the application download link or the link to the website. There is the possibility to rate the app in Appstore/Google Play and also write short feedback that shall be reviewed and processed by our staff. It is also possible to write a bug report directly, and this is recommended way to contact support. The application shall update automatically by default, but any user has the ability to turn the auto updates off.

Thus, the support team must process the user's complaints related to the normal functionality of the system. The development team must schedule the fix of a bug previously reported if there is one, evaluate the urgency and time needed, and finally assign developers who shall do the job.

7.3.2 Parallel operation of the new and existing systems

The backend of the system is backward-compatible, thus a user with an older version of the application can still have access to their data from the backend database. Worth to notice that updates are done for a good reason and are therefore recommended for all users.

8. Analysis of the Proposed System

Our development team is intended to provide the best and most reliable piece of software possible according to requirements and depending on the budget.

8.1. Summary of Improvements

The software simplifies the process of finding a girl a user may like for dating or saving found photos in a user's device. The software automates the work so the user only spends time on meaningful tasks. The preference filter in Tinder/Badoo is not perfect[3] and satisfactory for some users. The Get lai-d intends to solve the problem in an easy and comprehensive way for the users.

8.2. Disadvantages and Limitations

The mobile applications require either Android or iOS in order to work, a user also needs to sign in to Google Play/Appstore in order to download and install the app.

A user willing to use the website must have cookies and Javascript turned on in his browser as it is required for the website to work.

The software requires authorization via Tinder/Badoo or other dating app in order to work.

There is a limitation concerning the number of photos to be uploaded by the user. The floor limitation is 5 as it is the least amount to analyze and generate girls' look preferences.

8.3. Alternatives and Trade-Offs Considered

Generally there are no such products.

Preference filter in Tinder might provide some functionality. Sometimes might not work properly, and does not provide photo analysis or any alternative to it, so it shouldn't be considered as a solution.

Appendices

[1] https://aws.amazon.com/ec2/

[2] https://www.techaheadcorp.com/blog/upcoming-trends-for-dating-apps/

[3]https://www.help.tinder.com/hc/en-us/articles/115003517346-Profiles-don-t-match-my-gender-or-age-preferences/

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