Korona Fakt

"Had enough of COVID-19 fake news?"

Introduction

The project's idea focuses on validation of information appearing in the cyber network regarding Coronavirus. The problem addressed by the project concerns fake news linked to COVID-19. The platform is a simple browser plugin that gives the Internet User feedback on the articles he's currently browsing, whether it's fake news, it may contain suspicious or unverified information or it's verified resource. The plugin additionally allows the user to tag an article as suspicious information.

Who's it for?

1. **People involved in COVID-19 research** - those who want to encourage people to not believe everything there is on the internet about COVID-19, Korona Fakt provides the possibility to mark web content as unverified information or fake news.
2. **Regular Internet Users** - for people who want to make sure whether content they are reading comes from a reliable source or may contain unverified informations.

Why build it?

1. Along with the CoronaVirus epidemic we are experiencing so called "infodemic". COVID-19 is used as a tool for spreading political narrations, increasing tensions in societies and propagation of false information concerning a number of subjects. The fake news about the COVID-19 can be as dangerous as the virus itself, this is why we decided to build an easy to use and effective tool for fighting the problem.
2. Community of internet users deserve to have an opportunity to recognize which content published on the internet is fake news and which is not. This tool can wastly help with solving the problem of fake news about COVID-19.

What is it?

Glossary

1. **Fake news** - published content in form of web article considered to consist biased or false information
2. **Suspected or unverified content** - published content in form of web articles considered to consist suspected or unverified information
3. **Verified content** - content considered verified due to be published in the domain considered as official (e.g. www.who.int , www.gov.pl)

The platform
The platform consists of chrome browser extension which acts as a frontend/communication element and backend which utilizes rest API along with Postgresql database and Elasticsearch cluster.

Mark as fake feature
Mark as a fake feature allows a user to mark the article to be fake news. Using our chrome browser extension, user can report currently viewed article in order to mark it as fake. In the report form the user should provide an url to the article which contradicts the reported article. The submission will be then verified by platform moderators and if considered correct, added to the system database.

Is fake feature
Is fake feature provides feedback about currently browsing article whether it's fake news, it may contain suspicious or unverified information or it's verified resource. The system uses Elasticsearch More like this query which searches fake article database for similar content as the one contained in articles. If found, user will be prompted with a notification, containing the alert reason and link to a verified source .

Seeding Users, database data providers
Initial contributors will be carefully selected, they will be most likely people already fighting against fake news in the internet i.e. verified journalists. Later, after improval of the fake tagging algorithm, the access can be extended to everyone that wants to contribute.

Use-cases
From point of view of the user there are two scenarios of usage Korona Fakt plugin:

1) User can mark article as content consisting unverified/fake information, it can be done in two ways:
    a) First he can mark a content as fake without providing any additional reason,
    b) Additionally he can provide up to three sources urls that contradicts the information given in the marked article.
2) User query the information about the article in terms validity of containing information, getting back in return information:
    a) The article is tagged as fake (additionally you can see the url that proves it)
    b) The article is tagged as suspicious (additionally you can see the url that proves it, or the information that our MoreLikeThis elasticsearch query found similar content tagged as fake)
    c) The article is tagged as verified (due to host domain is among our verified domains)
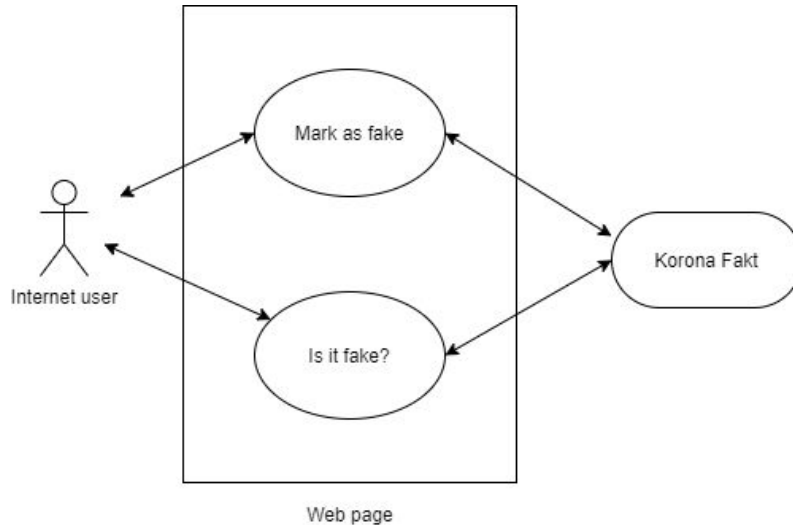   d) There is no information in our system about the content on the currently browsing web page.

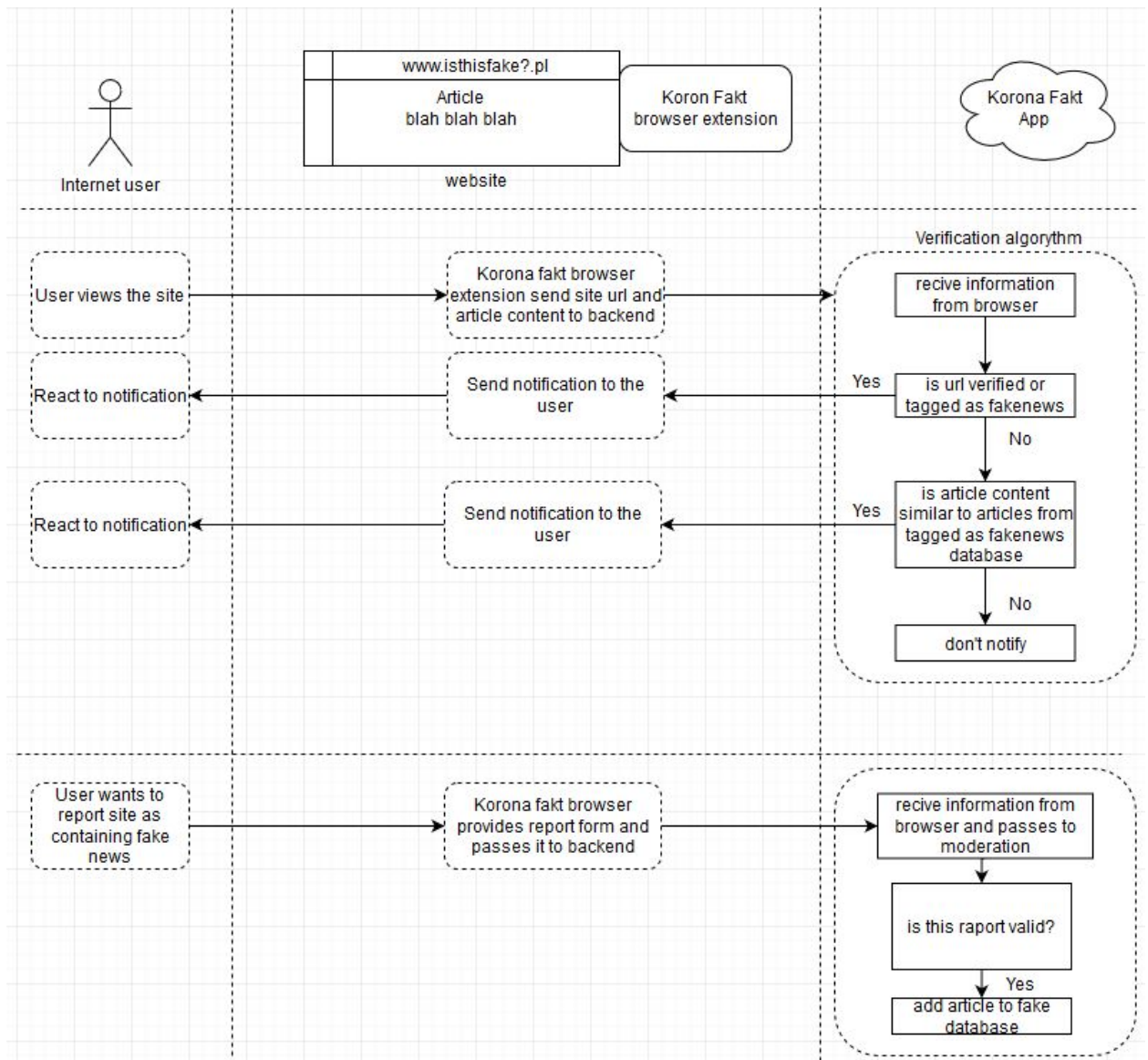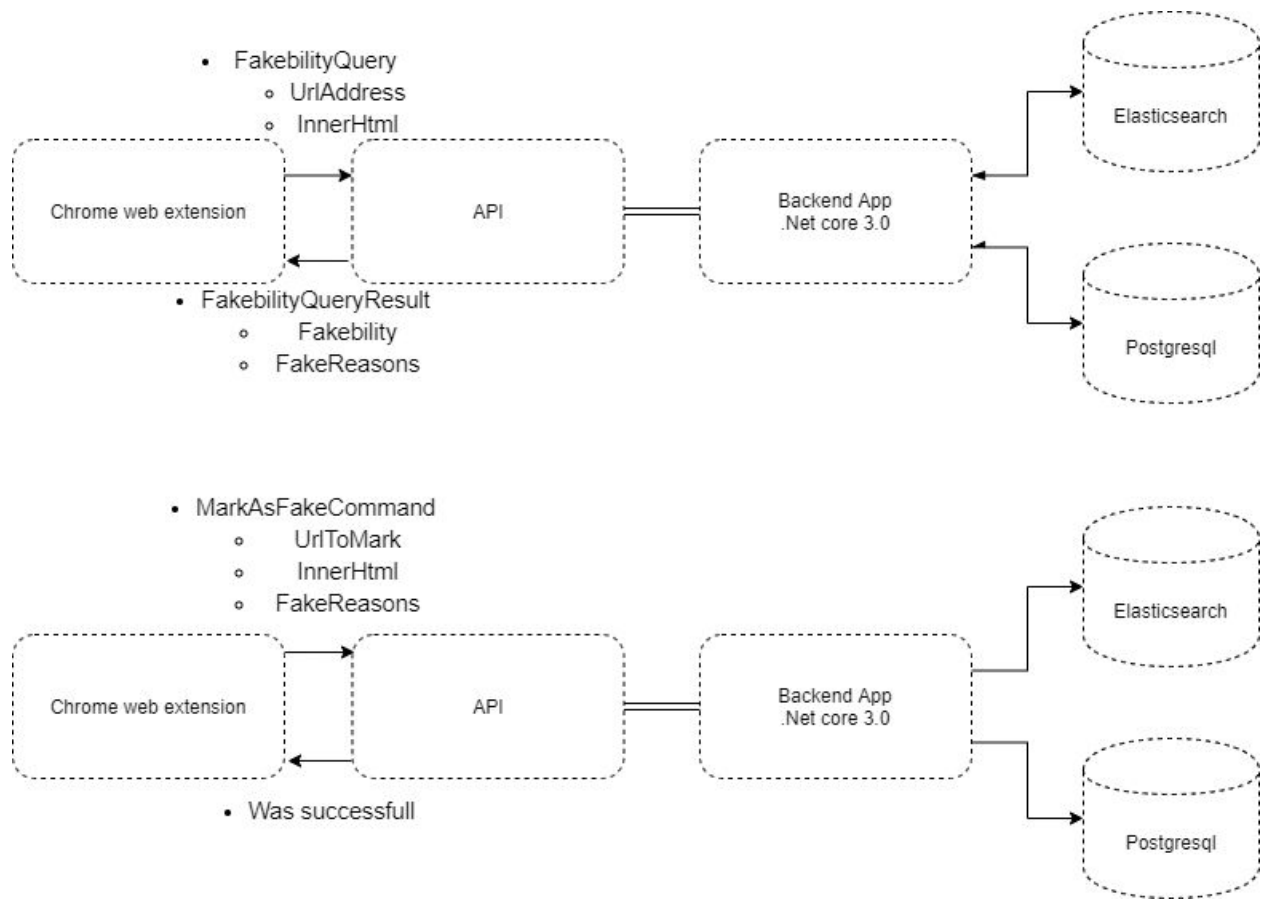**Fig. 1. Two Use-Case scenarios of an average user**

Fig. 2. Flow of interaction

Fig. 3. API calls scheme

Tech Notes

Models
  1) **Communication:**
  ● MarkAsFakeCommand
      ○ UrlToMark
      ○ InnerHtml
      ○ FakeReasons
  ● FakebilityQuery
      ○ UrlAddress
      ○ InnerHtml
  ● FakebilityQueryResult
      ○ Fakebility
      ○ FakeReasons

  2) **Datebase and Elasticseach**
  ● TaggedUrl
      ○ Id

- ○ Url
- ○ TaggedFakeCount
- ○ Fakebility
- ○ InnerWeb
- ○ FakeReasons
- ○ DomainHost
- ● FakeReason
  - ○ Id
  - ○ ReasonNotFakeUrl
  - ○ TaggedUrlId
  - ○ ReasonNotFakeCount
- ● VerifiedDomain
  - ○ Id
  - ○ DomainHost
- ● VerifiedDomain
  - ○ Id
  - ○ Url
  - ○ Body
  - ○ Fakebility

Mainly used technology:
- ASP.NET Core 3.1. Web API
- Postgres as SQL database
- Elasticsearch as search engine with NLP algorithms and polish language analyzers
- Chrome JS web browser plugin

Scalability

The application is easy to scale in both technical terms and market terms. Due to its simplicity application requires only a few simple steps in order to increase its performance:
- Adding loadbalancers and more instances of API
- Adding elasticserach nodes and Postgres shards

As far as market scalability is concerned, problems solved by the application are present everywhere in the world and concerns every internet user. Application doesn't need any additional effort other than translation of UI and adding data sets of verified sources and fake articles in relevant language in order to be spread in other countries.

Future plans

There are a lot of room for improvement, mainly:

- Adding a reason to "Tag as fake" feature, allowing users to select the reason why they think currently browsing content is fake,
- UI improvements,
- Better filtration of article content harvested and inserted into DB and elasticsearch,
- Administration module for reviewing the reported sites,
- Adding more languages with data sets of verified and fake articles

Remarks

There is no personal user data stored at any stage of using the Korona Fakt platform.

Links:
- Github repository: https://github.com/KrzysztofMaziarz/korona_fakt