

NHAGPT

What Is It?

NHAGPT is a web application that utilizes OpenAI's GPT-3 api to translate a given input code from one language to another. It can be viewed as the programming language equivalent to your standard language translator app.

How Does It Work?

Aside from using the main api mentioned above, it also utilizes the functionality of user profiles to allow access to the tool and keep track of translations and user feedback. The creation of an account is mandatory in order to use the main purpose of the web app. After the user has created their account, they must further verify their email address before they can continue to the translator. Once that is finished, the user is free to start using the tool given the api is up and running. The reason you must have an account before you can use the tool is to reduce potential spam, increase security, and give users a quick tour before they commit to signing up with us. Users are free to delete their accounts if they wish to do so.

Who Is This Made For?

NHAGPT has a core audience of software developers/programmers/engineers, but can also be used by teachers, tutors, and students as well. There is no tutorial on *how* to program, or what each programming language is, therefore it is highly recommended for one to already be somewhat familiar with programming.

At A Glance

The Landing Page

Upon entering our web app, users are greeted with a quick introduction to what our application is, how to get started, how people have reviewed it, the most recent update, and who it is made by. Users are then encouraged to sign up to our application with a few different buttons to direct them to the account creation page, a notable button being the “Signup Today!” in the introduction.

Once a user is signed up and logged in, the signup button in the introduction changes to a “Translate now!” button to help guide users to the translate page.

As mentioned previously, the home page also features user reviews made by real users, along with the total average rating of our application. Although the carousel of reviews only features the top rated reviews, any negative reviews will lower the total average on display.

Below the reviews portion, users can see the current version of the web app, followed by the patch notes for it (titled “What’s New!”). If users are curious to learn about older patch notes, they can do so via the Help page.

Finally comes the developer section. This final section of the home page shows who worked on the application, along with their currently selected profile picture through Gravatar (more on this later).

The Signup/Login Page

The signup page follows your standard signup format. You are asked to provide your first and last name, followed by your email address, followed by a password and a re-typed password. Users can also choose to allow the website to conveniently remember them so they don’t have to log back in constantly. After account creation, users are told to verify their email address before they can continue to the tool.

The login page allows the user to log (back) into their account, given they have one. If 2 Factor Authentication is enabled, they will be prompted to authenticate themselves first.

The Profile Page

Upon entering their profile, users can see important information regarding their account. Users can see their full name, the email address in use, the last time they logged in, when they created their account, and whether their email has been verified or not. Any changes the user

wishes to make can be done via the Settings button located right below. As for their profile picture, that can only be changed through Gravatar only if both accounts use the same email address. The user can read a little more about it on NHAGPT's Help page, or follow along on the Gravatar site.

Upon entering the settings page, users can change their first and last name at will, as well as their email address. If a user wishes to change their email address, they must authenticate when doing so. They will then be given a new link to the new email address to verify it, otherwise they will remain with their old email.

If a user wishes to change their password, they will be directed to a new page where they can accomplish that. If a user wishes to enable 2FA for their account, they will be directed to a new page where they can input their phone number to receive authentication codes. On the contrary, if they wish to disable it, they must authenticate first before the page lets them. Finally if a user wishes to permanently delete their account, they can do so via the Delete Account page where they must do one final authentication before their account is wiped.

The Help Page

Upon landing here, the user will be given a brief introduction on how to navigate the page. Upon navigating to any menu, the introduction will disappear. The page displays 4 menus, Guides, FAQ, Contact Us, and Patch Notes

Guides is composed of various easy to follow tutorials on how to use certain features of the web app. Guides are created by staff members only and thus cannot be altered, nor can new ones be made, by regular users. Each guide can be toggled visible or hidden to suit the user's screen use, and they each feature a picture to show the topic of the guide.

FAQ is composed of various questions a user might have. Just like the guides, only staff members can alter the questions shown. They can also be toggled as well. This page however, features a search bar to allow the user to quickly filter and find a specific question in mind. Leaving the search bar empty, or erasing the search, will restore all questions back in their original order. Filtering will not change the visibility of each question, meaning it will leave them in their current state.

Contact Us is composed of a brief welcome message, and a form to fill out. Each input in the form is required and must contain a valid response. The user must type in the name they wish to be addressed by, the email address they wish to communicate with, and what they are inquiring about. Their name must be something legible that makes sense .i.e "John" or "John Smith", their email address must be valid .i.e. "user@domain.com", and their message should contain anything reasonable. Failing to fill out the form correctly will result in an error message depending on the mistake the user has made. Successfully filling out the form will notify the user and empty it.

Patch Notes is composed of all the different (significant) versions of the web app ordered in reverse chronological order. Each version has a unique version number and can be toggled to show the notes or hide them, similar to the guides and faq menu. The latest version will always be labeled by the “Latest Patch” text, similar to how it is shown on the home page.

The Translator

Main Controls

Upon meeting all prerequisites, the user will be granted the ability to view the translator. Upon entry, the user can immediately see the status of the api to determine whether the translator is fully functional or not. Assuming that it is, the user can then select the input language they wish to translate from, or leave it blank for the application to decide, and the output language they wish to convert to. They can then type in some code that they wish to feed, or they can directly upload a code file instead. Once finished, the user can then click the "Convert" button to send a call to the application to attempt translation. Upon completion, the output box will be filled with the response that ChatGPT provides. The user can then either copy the code directly, or save it as a file in the respective output language.

User History

After a translation has been completed, users can choose to either clear the board via the erase icon, or view their history via the history button. Doing the latter will display a new history sidebar on the screen. Here the user has 3 different dropdowns: Sort By, Filter By and Select Filter, as well as a vertical arrow to switch between ascending and descending order, and a "Clear all history" button.

- Sort By and Filter By yield 3 options: Date (chronological order), Source Language (input language), and Destination Language (translated output).
- Select Filter works in conjunction with Filter By. After choosing a filter, users can then select a specific filter to show only matching results.
- Example: A history page can be sorted by date, filtered by source language, and match only Java inputs.

Leaving Feedback

After a translation has been completed, users can also choose to leave their feedback based on how their experience went. Feedback is not anonymous, therefore the user must be comfortable with displaying their full name and profile picture (if set up). Leaving feedback is optional but highly encouraged so that we can find areas that need improvement, and see areas that already work well. In order to successfully leave feedback, the user must give a rating to both their experience and the quality of the translation, as well as a message (review) of the web app. Not doing so will display an error message on the screen, otherwise it will show a confirmation upon submitting valid feedback.

Load Testing

For load testing, the general idea is to use a software called K6, which is great for our javascript application as it natively supports javascript testing, what is going to happen is that, through the provided API, we'll initialize a user, and then have it test the login, refresh, 2FA, editing a user's name and email, changing password, etc, basically all the functionalities of the site. After that K6 would then try to attempt doing this with two users, and so on, which will then ramp up the users to the point until the site breaks. We will then use the data provided by the software to find places we can better optimize, or places that are a bottleneck to our site if it were to actually go live with millions of users, and with that, we can keep testing and perfecting our app!

Things To Note

Not everything is perfect, and since our app relies on the functionality of OpenAI's GPT-3 api, things are bound to happen. The api could go down, resulting in a disabled translator. The api could give a low quality or confused result, resulting in a bad translation. Our application could reach a rate limit, resulting in a slow or unresponsive translator. We are aware of these misfortunes, and thus have been included on the FAQ portion of our Help page.

Our app is protected by ReCaptcha, meaning that users may sometimes be forced to prove themselves as legitimate before continuing on with using our web app. However this is but a minor inconvenience.

Our app is open source, and the source code is hosted on [Github](#) under the name "CS490-Newark-Hater-Allegiance". If one wishes to view our application at a deeper level, one is free to do so.