

Web Dev Technologies Project 2017-2018

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HELLENIC REPUBLIC

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About

Professional Networking Site or PNSite.

A social networking website targeting career and business professionals of every field, its purpose is to enable them to network professionally.

Designed as a university project for the Technologies of Web Applications class at the National Kapodistrian University of Athens.

Functions supported

- Https (SSL/TLS) (self-signed certificate)
- Login/Sign up
- Admin/Administration page gives an overview about the users, and their personal details can be exported as XML.
- Navbar with Home page, Network, Ads (Job Advertisements), Messages, Notifications, Profile (Personal details), Settings, Search field, Logout.
- Home page tab shows the user's details on the left, above a panel with a quick preview of the user's network. There is a field on the right side where the user can create a new post and a timeline with the user's posts, the user's friends' posts, as well as the user's friends' friends posts that the user's friends have liked.

Clustering Collaborative Filtering is used to sort the order in which posts appear on one's timeline. Each post also has an amount of likes (interests) and comments.

- Network tab shows a panel with the user's friends, their details, their profile photos, and links to their profiles.
- Ads tab is divided in half. On the left side, there is a panel/list of notifications about other users that have applied to one or more of the user's job advertisements; if there are any.

On the right side, there is a field where the user can create a new ad and include some "hashtags" (skills) that are related to that advertisement. There is also a timeline displaying job advertisements from other users, ordered using a combination of Content Based and Clustering Collaborative Filtering. The user can apply on those advertisements.

- Messages tab is divided into two sections, the left one is a list of the people the user has had conversations with in the past. After clicking on one of those conversations, the whole conversation with that user appears on the right side, and there is a field where new messages can be written and sent to that person.

- Notifications tab is divided in two sections. The upper one shows the connection (friends) requests that this user has received from other users. The user can either accept or decline them. The lower section shows the notifications of other people liking or commenting on one of the user's posts.

- Profile tab provides a list of fields in which the user can add his personal details or update them. The user can also add/change his/her profile picture, and decide which details would be visible publicly, or only to the user's

friends.

- Settings tabs provides fields in order to change the user's email and password.
- Search field is a field in which a user can type a text string and any name/surname matching that string will appear in the search results. Once the user clicks on one of the results, he/she is transferred to the username's profile. Also, there is the option of instantly messaging them.
- Logout tab does, ehm the obvious.

Cluster Colaborative Filtering

Collaborative Filtering is a generic approach that can be summarized as "using information from similar users or items to predict affinity to a given item".

We used it as a recommender system for user Posts and Advertisements. More precisely the system for posts relies on interest and comments of the user, finds similarity scores between users using Jaccard Distance, then uses these similarity scores to score candidate Posts based on the users that interacted with that post. Besides this we also used filters that lower a posts score if its already been interacted with by the user, if its too old, if its one of his own posts, we probably should have added a filter that boosts fresh posts so they get seen or other trivial stuff, but the main goal was implementation and we wouldn't really have users and as an extension we wouldn't have bad user experience to worry about :)

high user score —(user interacted with post)—> High Post Score

Technologies used

- The python Django framework has been used to implement those functions, as well as sqlite for the back-end of the app. Note that for a production grade website sqlite is one of the worst options, as it for example will not enforce the model restrictions when creating one. We suggest PostgreSQL or MySQL. Anyhow we decided to include these just to make things clearer and to make migration to mysql easier if we choose to.

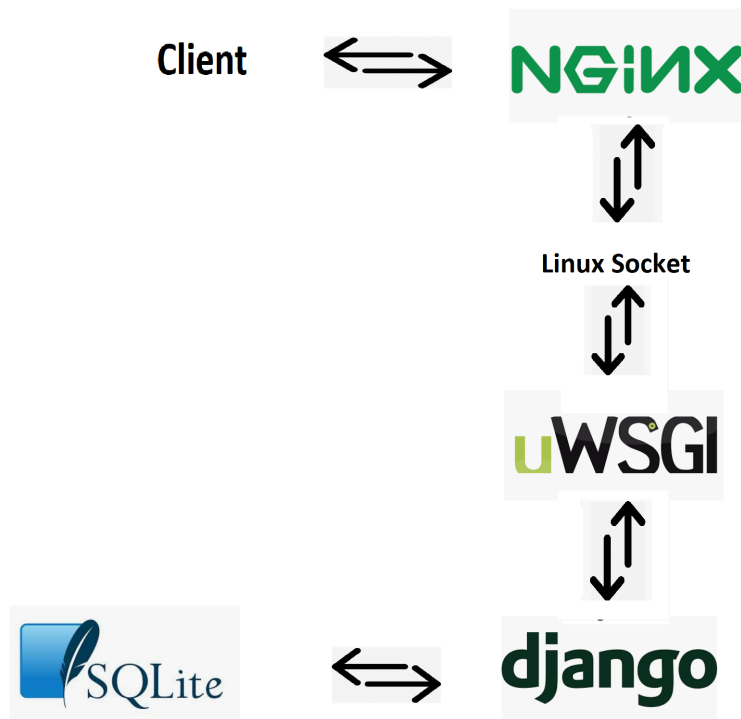
- For the front-end HTML, CSS, Bootstrap and Javascript was used.

- The Django framework provides a development server but it is very limited. So we choose Nginx as a server. It is connected to Django through uWSGI. Django provides a wsgi module and it makes it very easy to connect the stack.

- In order to avoid reloading out pages and to make the site more user friendly jquery was used along with ajax. Almost all of the related code can be found in PNapp/static/PNapp/js/rango-jquery.js file

- A python virtual environment to isolate the components.

The Stack



Setup

Keep in mind this was developed on ubuntu 16.04 and python3.

1. Setup existing Django Projexitct Tutorial ([click me](#))
If you wish to run the development server on a different (ex.8001) port just run: `python ./manage.py runserver 8001`.
You can now visit the site at localhost:8000. And the admin page at localhost:8000/admin.
Whenever you edit your model fields (adding a new one, changing an existing one or altering any of the arguments it takes) then you should always run migrations:
`python manage.py makemigrations`
`python manage.py migrate`
2. Setting up Django and your web server with uWSGI and nginx ([clickme](#))
3. Setup Nginx HTTP Server Self-Signed SSL/TLS Certificates on Ubuntu 16.04 LTS Servers ([clickme](#))

Image Samples

Here are some images from the site just so you can visualize it better. Again, our focus was not on being very fancy with CSS but learning stuff and implementing it. We apologize in advance for what you are about to see :) (also we ripped of some existing social networks for ideas)

Part of admin page.

Professional Network Administration

WELCOME ADMIN / VIEW SITE / CHANGE PASSWORD / LOG OUT

Home / Phapp / Users

Select user to change

Action:

Go

0 of 4 selected

ADD USER +

<input type="checkbox"/>	NAME	SURNAME	ID	EMAIL	EMAIL PUBLIC	PASSWORD	PHONE	PHONE PUBLIC	PROFILE PHOTO	UNIVERSITY	UNIVERSITY PUBLIC	DEGREE SUBJECT	DEGREE SUBJECT PUBLIC	COMPANY	COMPANY PUBLIC	POSITION	POSITION PUBLIC
<input type="checkbox"/>	Donald	Trump	4	donald@asd.asd		asd			/profpics/2018/09/30/user4.jpg	Wharton School of the University of Pennsylvania							
<input type="checkbox"/>	Anon	User	3	anon@asd.asd		asd			/profpics/2018/09/30/user1.jpg								
<input type="checkbox"/>	Dr. Ioannis	Chamodrakas	2	ihamod@di.uoa.gr		asd			/profpics/2018/09/30/hamo.jpg	2009 Ph.D. in Computer Science, Department of Informatics and Telecommunications, NKUA				NKUA			
<input type="checkbox"/>	Elon	Musk	1	elon@asd.asd		asd			/30/elonmusk.jpg	University of Pennsylvania (1997)		Undergrad Economics & Bachelors Degree in Physics		Tesla		CEO	

4 users

ps: stay in school, don't do drugs and USE HASH FUNCTIONS FOR REAL WORLD APPLICATIONS

Welcome Log in & Sing Up page.

PN site

☐ Remember me

Sign up

Your Name

Your Surname

Your Email

Password

Confirm Password

Register

Homepage

The screenshot shows the homepage of the 'PN site'. The top navigation bar includes links for Home Page, Network, Ads, Messages, Notifications, Profile, Settings, a search bar, a Submit button, and a Log out link. The main content area is divided into two columns. The left column features a 'Personal Details' section for 'Elon Musk' with fields for Name, Email (elon@asd.asd), Education (University of Pennsylvania (1997)), Subject (Undergrad. Economics & Bachelors), Degree in Physics, Company (Tesla), and Position (CEO). Below this is a 'My Friends' section showing two friend avatars and a 'View All Friends' button. The right column is titled 'Wall' and contains a 'Write on the wall' text area with a Submit button and options for Text, Image, and Video. Below the wall are two posts. The first post is by 'Dr. Ioannis Chamodrakas' with the text 'This is my first post!' and a timestamp of 'Sept. 30, 2018, 8:31 p.m.'. The second post is by 'Elon Musk' with the text 'When something is important enough, you do it even if the odds are not in your favor.' and a timestamp of 'Sept. 30, 2018, 8:15 p.m.'. Both posts have a comment box and an 'Add' button.

Profile and info settings

The screenshot shows the 'Profile and info settings' page for 'Elon Musk'. The page has a header with the name 'Elon Musk' and a profile picture. Below the profile picture is a section for 'Pick new profile picture:' with a 'Browse...' button and a 'No file selected.' message. The main content area is divided into two columns. The left column contains labels for 'First name:', 'Last name:', 'Phone Number:', 'Education:', 'Degree's Subject:', 'Current Company:', 'Current Position:', and 'Personal Skills:'. The right column contains input fields and checkboxes for each of these categories. The 'First name' field contains 'Elon', the 'Last name' field contains 'Musk', the 'Phone Number' field is empty, the 'Education' field contains 'University of Pennsylvania (1997)', the 'Degree's Subject' field contains 'Undergrad. Economics & Bachelors Degree in', the 'Current Company' field contains 'Tesla', the 'Current Position' field contains 'CEO', and the 'Personal Skills' field contains a list of skills: 'creativity', 'critical thinking', 'industriousness', and 'resourceful'. There are checkboxes for 'Show phone number in public.', 'Show university in public.', 'Show degree's subject in public.', 'Show company in public.', 'Show position in public.', and 'Show skills in public.'. At the bottom of the page are 'Save Changes' and 'Cancel' buttons.

Chat Messages.

PN site

Home Page

Network

Ads

Messages

Notifications

Profile

Settings

Search


Submit

Log out


Donald Trump

Dr. Ioannis Chamodrakas

Dr. Ioannis Chamodrakas





Hello Elon!



I sent you a friend request :)


I accepted you!






This site is bad its storing all user passwords as cleartext and that can result in a massive security breach if the password file is compromised.

I know! They should of used bcrypt but were probaby too lazy cause they wrote this on a saturday night after a couple of beers!



Write a message...



Notifications

PN site

Home Page

Network

Ads

Messages

Notifications

Profile


Settings

Search

Submit

Log out

Connection Requests




Anon User added you.


✓ Accept Request

✗ Reject Request


Post Notifications



Dr. Ioannis Chamodrakas commented on your post: "When something is important enough, you do it even if the odds are not in your favor." and wrote "I agree!"



Dr. Ioannis Chamodrakas is interested in your post: "There have to be reasons that you get up in the morning and you want to live. Why do you want to live? What's the point? What inspires you? What do you love about the future? If the future does not include being out there among the stars and being a multi-planet species, I find that incredibly depressing."



Dr. Ioannis Chamodrakas is interested in your post: "If you get up in the morning and think the future is going to be better, it is a bright day."


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Profile

PN site

Home PageNetworkAdsMessagesNotificationsProfileSettingsSubmitLog out

Personal Details



Name: Elon Musk
Education: University of Pennsylvania (1997)
Skills:

- creativity
- critical thinking
- industriousness
- resourceful


Add FriendSend Message

Advertisement Panel.

PN site


Home PageNetwork**Ads**MessagesNotificationsProfileSettingsSubmitLog out


My Advertisements

 Elon Musk applied for your job ad "Lab Assistant".

Job Advertisements

+
Submit

 CTO
CTO at Tesla
#c++ #java #python
✓ Already Applied

 Lab Assistant
details