Web Technology 2 Project
Emblaze

A simple to use web app to create or beautify existing resumes.

Submitted By:

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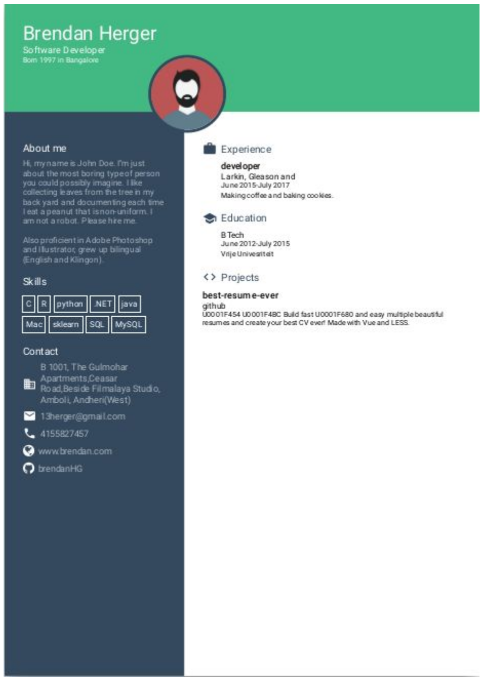
Synopsis

Emblaze allows you to create beautiful and breathtaking resumes. You can either:

- Create a resume from scratch.
- Create a resume by uploading a PDF and letting our system to intelligently guess the details by parsing your resume with industry standard NLP package: spacy.

Here’s a simple demo of what our resumes look like:



Brendan Herger
Software Developer
Born 1997 in Bangalore

About me

Hi, my name is John Doe. I'm just about the most boring type of person you could possibly imagine. I like collecting leaves from the tree in my back yard and documenting each time I eat a peanut that is non-uniform. I am not a robot. Please hire me.

Also proficient in Adobe Photoshop and Illustrator, grew up bilingual (English and Klingon).

Skills

C R python .NET java Mac sklearn SQL MySQL

Contact

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Experience

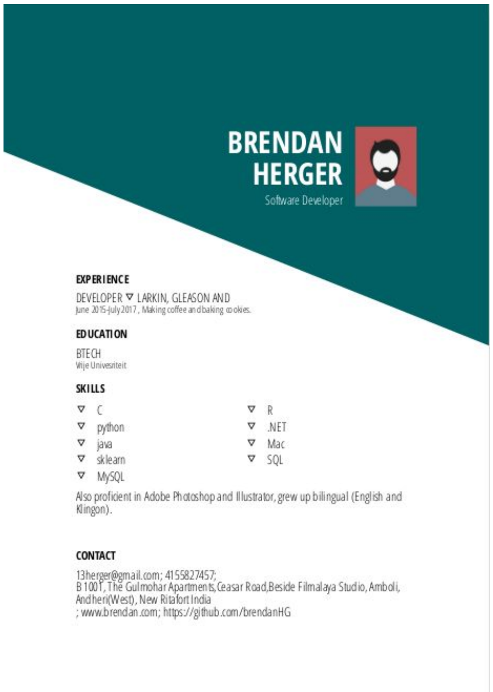
developer
Larkin, Gleason and
June 2015-July 2017
Making coffee and baking cookies.

Education

B Tech
June 2012-July 2015
Vrije Univesriteit

Projects

best-resume-ever
github
U0001F454 U0001F4BC Build fast U0001F680 and easy multiple beautiful resumes and create your best CV ever! Made with Vue and LESS.



BRENDAN
HERGER
Software Developer

EXPERIENCE

DEVELOPER ▽ LARKIN, GLEASON AND
June 2015-July 2017 , Making coffee and baking cookies.

EDUCATION

BTECH
Vrije Univesriteit

SKILLS

▽ C
▽ python
▽ java
▽ sklearn
▽ MySQL
▽ R
▽ .NET
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▽ SQL

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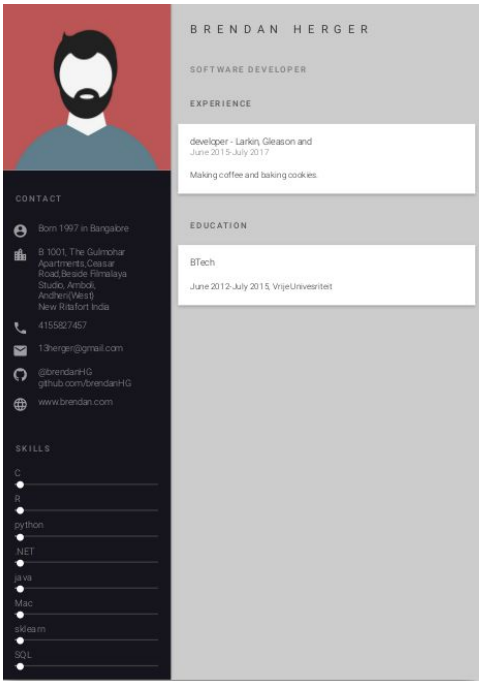

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SQL

Technologies

The following technologies were used. The reason for using the same are mentioned. Internal modules if used are specified with their reasons.

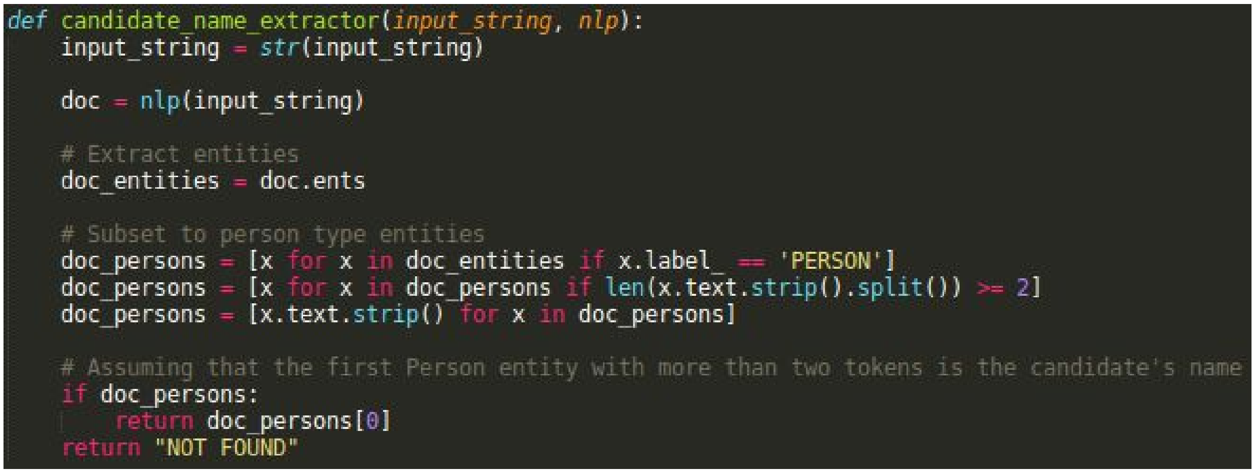
1. **Flask:**
    a. Reason: Used as server number 1. Had following functionalities:
        i. Getting PDF uploaded and passing it onto resume-parser module.
        ii. Placing the results in appropriate boxes in the common input form.
        iii. Handling the form input and passing it onto Node server for placing the input into the resume templates (via VueJS).

    b. Module 1: **Jinja2**, Reason:
        i. Flask uses Jinja2 as its templating engine.
        ii. Jinja2 replaces all “mustaches” appearances in a document with data/variables mentioned within them. Eg: {{ container.value }}

    c. Module 2: **MySQL connector**, Reason:
        i. Used to connect to MySQL server.
        ii. Server stored city, state and company names.

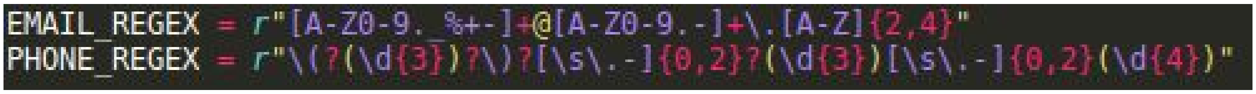
2. **Spacy:**
    a. Reason:
        i. Used for NLP. Spacy is a Industrial-strength Natural Language Processing module written in Python.
        ii. We used it to extract details from text version of resume PDF.

iii. The details are obtained by running the module over with certain rules. Eg:
Rule for getting name of candidate:



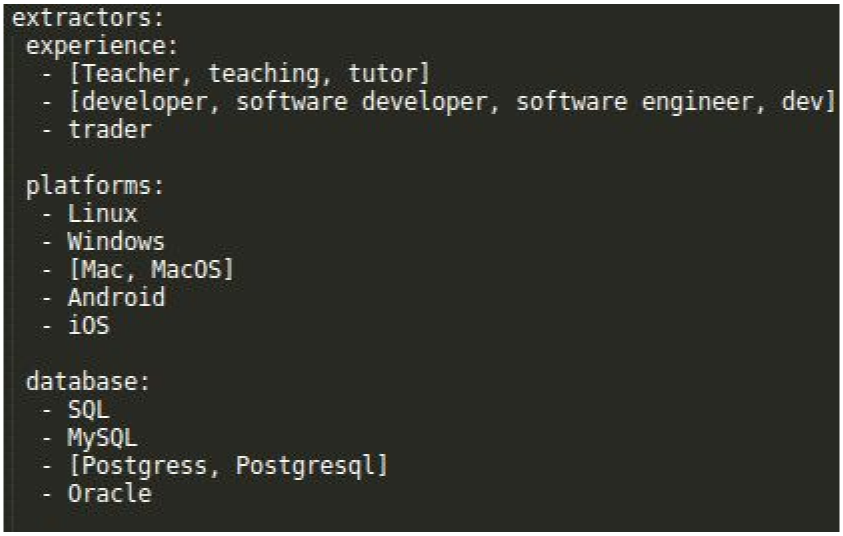
```python
def candidate_name_extractor(input_string, nlp):
    input_string = str(input_string)

    doc = nlp(input_string)

    # Extract entities
    doc_entities = doc.ents

    # Subset to person type entities
    doc_persons = [x for x in doc_entities if x.label_ == 'PERSON']
    doc_persons = [x for x in doc_persons if len(x.text.strip().split()) >= 2]
    doc_persons = [x.text.strip() for x in doc_persons]

    # Assuming that the first Person entity with more than two tokens is the candidate's name
    if doc_persons:
        return doc_persons[0]
    return "NOT FOUND"
```

While extracting simpler details like email and phone are done via regex:



```python
EMAIL_REGEX = r"[A-Z0-9._%+-]+@[A-Z0-9.-]+\.[A-Z]{2,4}"
PHONE_REGEX = r"\(?(\d{3})?\)?[\s\.-]{0,2}?(\d{3})[\s\.-]{0,2}(\d{4})"
```

iv. The details are given by an extractor, which in turn reads a yaml template file. This file contains some data that helps the extractor to get data:



```yaml
extractors:
 experience:
  - [Teacher, teaching, tutor]
  - [developer, software developer, software engineer, dev]
  - trader

 platforms:
  - Linux
  - Windows
  - [Mac, MacOS]
  - Android
  - iOS

 database:
  - SQL
  - MySQL
  - [Postgress, Postgresql]
  - Oracle
```

3. **VueJS:**
    a. Reason:
        i. It’s an open-source JavaScript framework for building user interfaces and single-page applications.
        ii. We used this to fill template resumes with data entered by user.
        iii. VueJS recommends NodeJS to be the backend. This is beneficial **as both VueJS and Jinja2 use double mustaches** as their template matching syntax.
        iv. Thus we used VueJS with NodeJS

4. **NodeJS:**
    a. Reason: Server number 2
        i. Has only one job: Run VueJS on the data input.
        ii. Then render the new resumes onto users screen.
5. **Bootstrap 4.0, jQuery:**
    a. Reason:
        i. Bootstrap used for easy to use CSS and javascript extensions.
        ii. jQuery for cross browser compatible javascript.

6. **Pandas, Textract, PyYAML:**
    a. Reason:
        i. Pandas used for reading and writing into CSVs.
        ii. Textract used to convert PDF to text.
        iii. PyYAML to convert dictionaries into YAML files.

Reasons for using above Technologies

1. **Flask:**
    a. Competitors: Django in python and other servers.
    b. Used mainly because NLP packages are mostly available in python.
    c. Also tools for reading from CSVs, writing YAML files, reading from PDF, are readily available in python.
    d. Thus we needed a python based server. Since our needs were small we didn’t go with Django and went with Flask.

2. **Spacy:**
    a. Competitors: NLTK, which is another NLP toolkit in python.
    b. We chose Spacy as it’s meant for industry grade NLP and many industries use it.
    c. Spacy’s interfaces are also well defined and easy to use.

3. **VueJS:**
    a. Competitors: AngularJS or ReactJS.
    b. The Virtual DOM model is very helpful in terms of performance. Both React and Vue have a Virtual DOM. Due to a well-built structure, Vue delivers great performance and memory allocation.
    c. Vue is the cleanest in comparison to these three frameworks.
    d. We desired separation of concerns and thus settled on VueJS.

4. **NodeJS:**
    a. Reasons are as mentioned in previous section.

AJAX Techniques used:

1. **Predictive Fetch:**
   a. Used in homepage to fetch items only if user scrolls.
   b. This is important as homepage has a lot of images and javascript which is unnecessary to be loaded if user doesn’t scroll.
   c. Thus Predictive fetch allows us to save bandwidth by transmitting only when needed.

2. **Submission Throttling:**
   a. Used to fetch commonly entered data as user enters data into a location.
   b. Eg: Shows suggestions of states, cities and companies as user enters their names.
   c. Reduces user input time and gives a better overall experience.

Other web technology considerations:

- Considering performance as a metric, we’ve used Content Delivery Networks to fetch some of our libraries.
- Also, we’ve used the minified versions to reduce bandwidth consumption.

Future Scope:

- Better conversion of PDF to text. The current textract module doesn’t do a good job when PDF structure is complex.
- Using a NLP toolkit which can detect Indian names. Spacy being a US based product does not detect Indian names. This can be updated by contributing to their package or creating one for Indian purpose.

Acknowledgement

This project was part of Web Technology 2 course. We are thankful to our professor Mr. Sivaraman E and Srikanth R for their helpful guidance.