**SEARCH ENGINES!!!!**

Abstract:

* Make it up on the day

Introduction:

* An error message web app that’s able to perform a generic api call to stack overflow for related forum posts, a google web crawler that provides a list of urls that are appropriate for the documentation for individual languages and frameworks and finally a scraper that is able to extract information from other software development websites in order to provide more information to the developer.
* Brief mention on how search engines are important in everyday life
  + The difference to a web crawler?
* Why web crawlers are important
* Who uses web crawlers?
* Percentage of sites that use some form of web crawling
  + Stat / Source to back up claim
* What I will be making
* How I will test it

Literature review:

* Definition of a search engine
  + <https://research.aimultiple.com/big-data-stats/> - ctrl + F ‘IBM’, 90% of world data created in previous 2 years (2013)
  + What is a search engine
  + Characteristics that define them
  + How their used
  + Examples of them
  + How they are measured
  + Evolution ? short
* Definition of a web crawler
  + What is a web crawler
  + Characteristics
  + How they are used
  + Who uses them
  + How they are defined (architectures diagram)
  + How a web crawler differs from a search engine
  + How the performance of a web crawler is measured
  + Evolution ? short
* Definition of a web scraper
  + What is a web scraper
  + Characteristics
  + How they are used
  + Who uses them
  + Architecture of them
  + How a web scraper differs from a web crawler
  + How the performance of a web scraper is measured
  + Evolution? Short
* If focus on performance, the characteristics of memory / CPU clock speed and how they impact performance on crawler and scraper

Methodology

Results

Discussion

* How it can be improved

Conclusion

References

Literature review: