Choose 1 of the following

Some of these are easier than others so if you are new to python then choose an easier one

If you finish your programming challenge / hackathon early, you can either

* try a second one
* create a simple NoSql Database (e.g. MongoDB) and store your output/reports/ results in it

1. Simple login system / account create system

Store the username & password in a text file.

1. Test a website(s) for its availability. Send mail to some people, if the site is down.
   1. Use the python package **requests**.
2. Backup all files in /Backup and databases and Store in a remote place.
   1. Use the python package **os** and **re**
3. Analyse an apache log file (in /Apache\_log) and get statistics from it.

Produce a report in Microsoft excel showing

Errors, notices, forbidden access, most common & least common functions

Plot some graphs showing the servers usage profile.

* 1. Many python packages for this one, e.g. pandas, numpy, re, os and there are many plotting and charting packages – e.g. **seaborn**, **plotly**, **dash**

1. SP500 Best & Worst performing stocks

Produce a report in Microsoft excel showing

e.g. Best 5 and Worst 5, by calculating returns

Most Actively Traded, Least Actively Traded – by using volume

Make the reports by day, by week, by month

There are many python packages for this one,

* 1. e.g. **pandas\_datareader**, **BeautifulSoup** and **requests** to extract data from the internet
  2. **pandas**, **numpy**,
  3. **re**, **os**
  4. there are many plotting and charting packages – e.g. **seaborn**, **plotly**, **dash**

1. Using market data and expected 1 year returns for a selection of securities – stocks, bonds, commodities etc. Find their efficient frontier and produce a report showing the optimal portfolio for

* Risk averse investors
* Investors who are prepared to take some risk

Produce a report in Microsoft excel showing both portfolios

Repeat the same exercise for different selections of securities

There are many python packages for this one,

* 1. e.g. **pandas\_datareader**, **BeautifulSoup** and **requests** to extract data from the internet
  2. **pandas**, **numpy**,
  3. **re**, **os**
  4. there are many plotting and charting packages – e.g. **seaborn**, **plotly**, **dash**