Developer Challenge 2.1

### Version History:

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| Date | Version | Notes | Author |
| 08 OCT 2021 | 0.01 | Initial version based off client challenge | val.adrien.li |
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# Introduction

This document outlines a technical assessment given to **backend** developer candidates.

This challenge aims to test most, if not all, of the following items:

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| Language Knowledge | |
| Python 3 | Django (backend web framework) |
|  | virtualenv/pyenv (environment isolation) |
|  | unittest (test-driven development) |
| SQL | PostgreSQL (relational database) |

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| Architecture & Design | |
| Web Development | Model-View-Controller (Django) |
|  | Authentication & Authorisation (Django + Postgres) |
| Databases | Database Connectors (Django + Postgres) |
|  | Data Aggregation (Postgres) |
|  | Data Normalisation and Foreign Key Creation (Postgres) |

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| Other | |
| Collaboration | Documentation and git (.gitignore, committing, branching) |
| Code Quality | Object-oriented programming principles, error handling, commenting |

# Background

Maritime piracy is defined as the plundering, hijacking, or detention of a ship, with the typical goal of perpetrators (pirates) to steal valuable cargo or hold crew to ransom. It has plagued fleets in international waters [since 14BC](https://en.wikipedia.org/wiki/Sea_Peoples#History_of_the_concept), evolving tactics, technology, and targets, just as the maritime industry has evolved. A [growing number](https://southeastasiaglobe.com/how-corruption-is-fuelling-modern-day-piracy/) of [news articles](https://www.occrp.org/en/blog/12933-corruption-and-poverty-made-west-africa-hot-spot-for-piracy) seem to suggest a correlation between pirate attacks in the waters near countries with a high perceived level of corruption in the public service.

An open dataset has been provided via [Kaggle](https://www.kaggle.com/n0n5ense/global-maritime-pirate-attacks-19932020) (<https://www.kaggle.com/n0n5ense/global-maritime-pirate-attacks-19932020>) listing over 7,500 attacks between January 1993 and December 2020, and included in *pirate\_attacks.zip*. It has been requested that a tool be created to query for such correlations as a precursor to both policy-writing for security firms and further study by machine learning projects.

# Requirements

The application should be a Django project that runs on Python 3.7.x using a PostgreSQL database. It should allow users to:

1. Login to the Django admin site;
2. Display the top 10 countries affected by piracy on their shores by volume, and their rates of perceived corruption; and,
3. Search for pirate attacks by date and per country.

A separate script should also be provided to import the latest data in the *pirate\_attacks\_oct\_21.csv* file, running using the same version of Python and taking the file location as an argument.

The application should also include:

1. A .git folder showing commit history;
2. A test suite with instructions on running the tests; and,
3. A readme file with notes on the design and development of the application.

# Submission

The recommended time for this challenge is 3-4 hours. If it’s not complete by then, don’t worry – the expectation isn’t a perfect application, simply enumerate outstanding items in the README.

The project should be submitted as a hosted private repository (such as on Github) and the link emailed to val.adrien.li@accenture.com.

# Appendices:

## Appendix I: Sample Submission

A sample project can be found at <https://github.com/val-something/dev_challenge_2_1>.

Contact <mailto:val.adrien.li@accenture.com> for access if not granted.