

# Inkosi

The project aims to offer an *Algorithmic Trading Platform*, the idea is *not* meant to develop a trading strategy but, to build a reliable, efficient and maintainable solution to open and close positions accordingly to *algorithmic* or *manual* trading signals.

In a more practical way, I would introduce a **sample scenario** strived to explain the idea. Before going on, with the clarification, I would mention some terms:

- **Investment Firm**

- A financial institution that *manages* and *invests* money on behalf of individuals or organisations, with the objective of **generating financial returns**.

- **Funds**

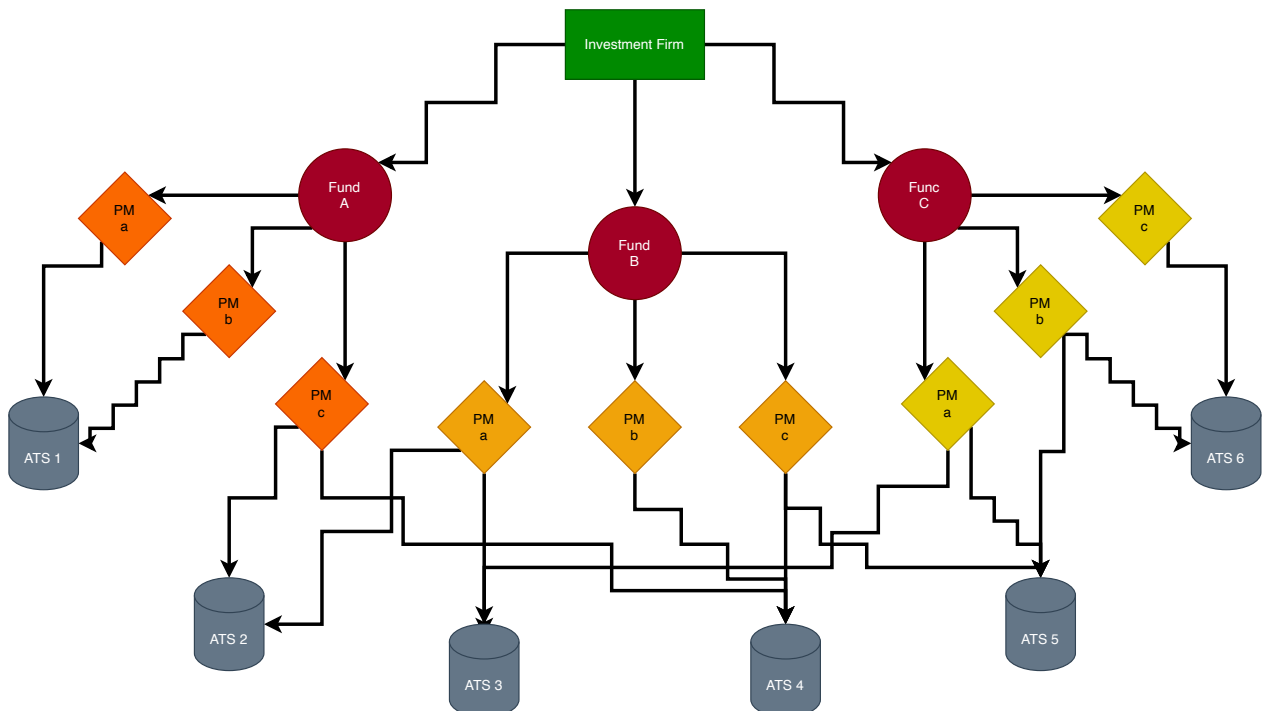
- All the money collected through an **initial campaign** of the **Investment Firm** are *distributed* and *assigned* to different funds according to different features, such as:
  - Liquidity
  - Asset
  - Investment Objectives
  - ...

- **Portfolio Managers (PM)**

- He is a **financial professional** or an **entity** responsible for managing an investment portfolio on behalf of funds
- For each funds are generally assigned a different number of **portfolio managers** in accordance with their prior experiences, financial knowledge, etc.

- **Algorithmic Trading Strategies (ATS)**

- A simple **application** able to send trading signals to the main platform accordingly to strategies based on an empirical approach, machine learning models, etc.



The figure above plots an example of the structure of a **generic investment firm** (green rentable) with **three underlying funds** where, for each of them there are **three different portfolio managers** which decided to diversify the capital assigned to different **algorithmic trading strategies** (six in this case).

At the state of art, the platform is able to cope with various contexts:

- Investment Management Firm (Multi-funds administration)
- Hedge Fund
- Professional Trader
- Practitioner

The platform involves **different type of python dependencies**, their single use will be discussed in the **documentation** available on the **GitHub Repository** (which link will be available at the end of the document).

#### **Dependencies and related technicalities:**

- FastAPI
  - Used to build an **API Server** for
    - Trading Signal
    - Fund Information
    - Historical Orders
    - General information
- OmegaConf
  - Used to work with the **configuration files**
- PyMongo
  - Used to communicate and work on a **MongoDB Instance**
    - Needed to store information
- SQLAlchemy
  - Used to communicate and work on a **PostgreSQL Instance**
    - Needed to store different type of Information
- MetaTrader5
  - Used to communicate with the **broker platform**

During the work, there will surely be some **changes** and **updates** both regarding the dependencies (as an example, still thinking about choosing *PyDantic* or *dataclasses* for data validation) and generic platform aspects.

I would like to thank you the *Professor Iozzi* and *Teaching Assistant Badalotti*, for the opportunity to develop such a project.

GitHub Repository Link (currently working on branch ***develop***): <https://github.com/BopaxDev/Inkosi>

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