

2022


MIE1624 Course Project

Group 19

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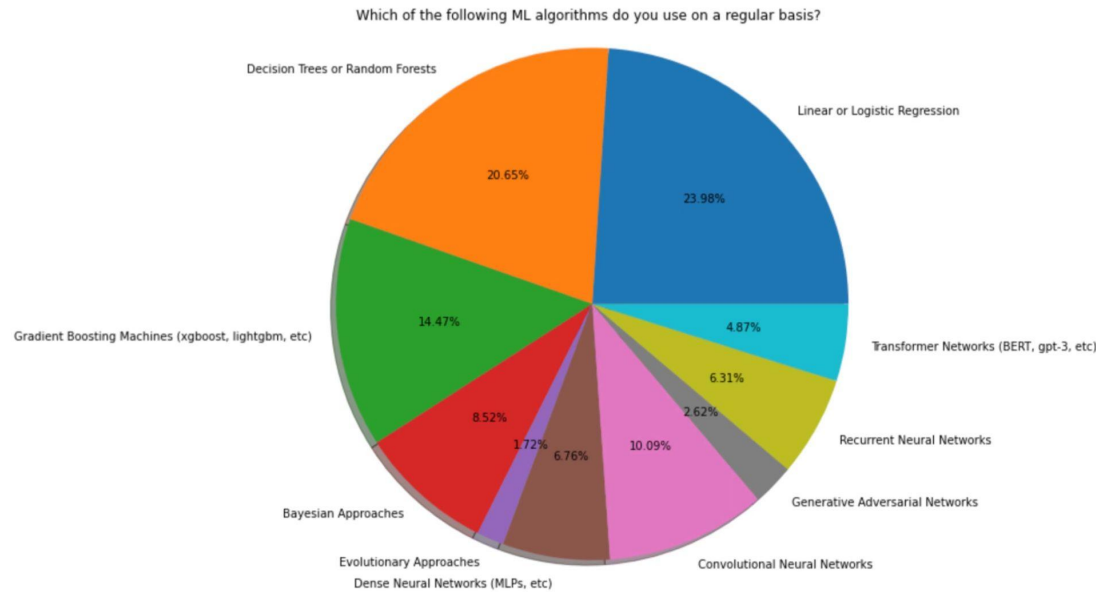
PART 01

MIE1624 course redesign

Resource

- Kaggle Machine Learning & Data Science Survey 2021
- Similar courses

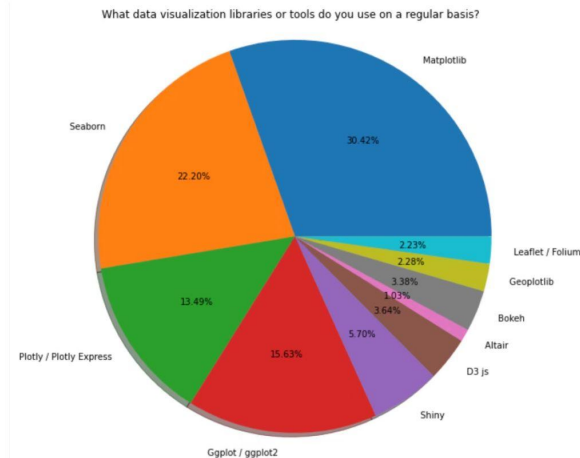
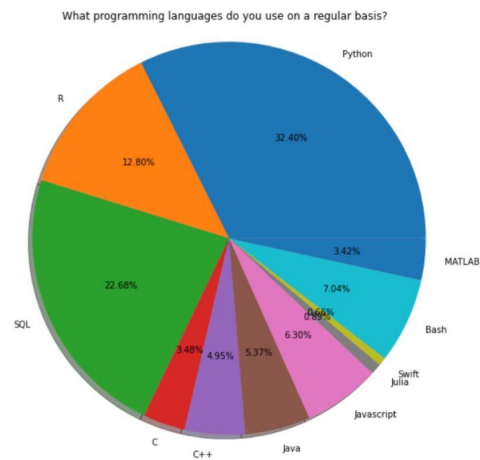
Analysis the survey data



The most popular computer programming languages are Python, SQL and R.

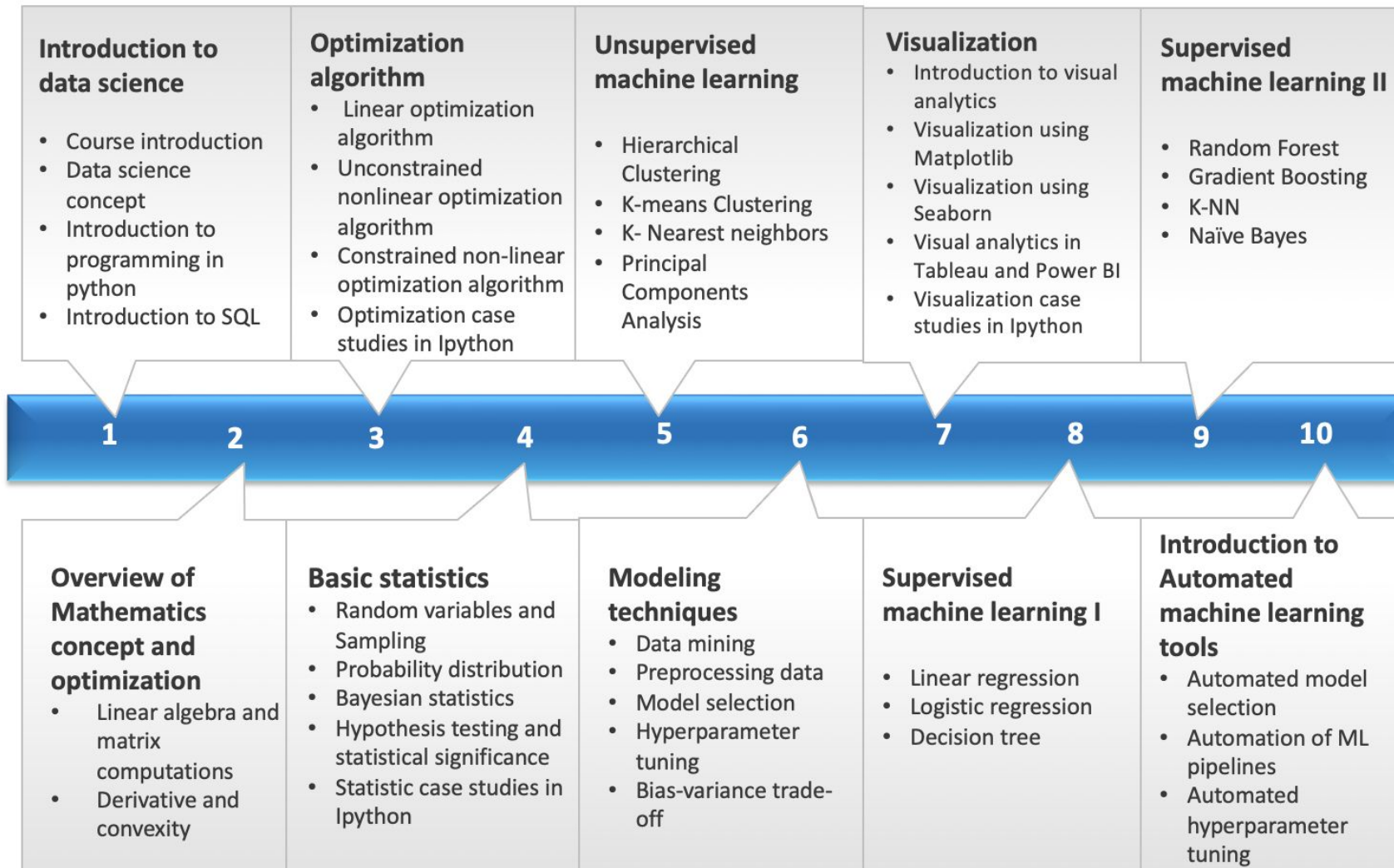


The most frequently used machine learning algorithms are linear or logistic regression, decision trees or random forest and Gradient Boosting Machines



Matplotlib and Seaborn are the two most frequently used visualization libraries

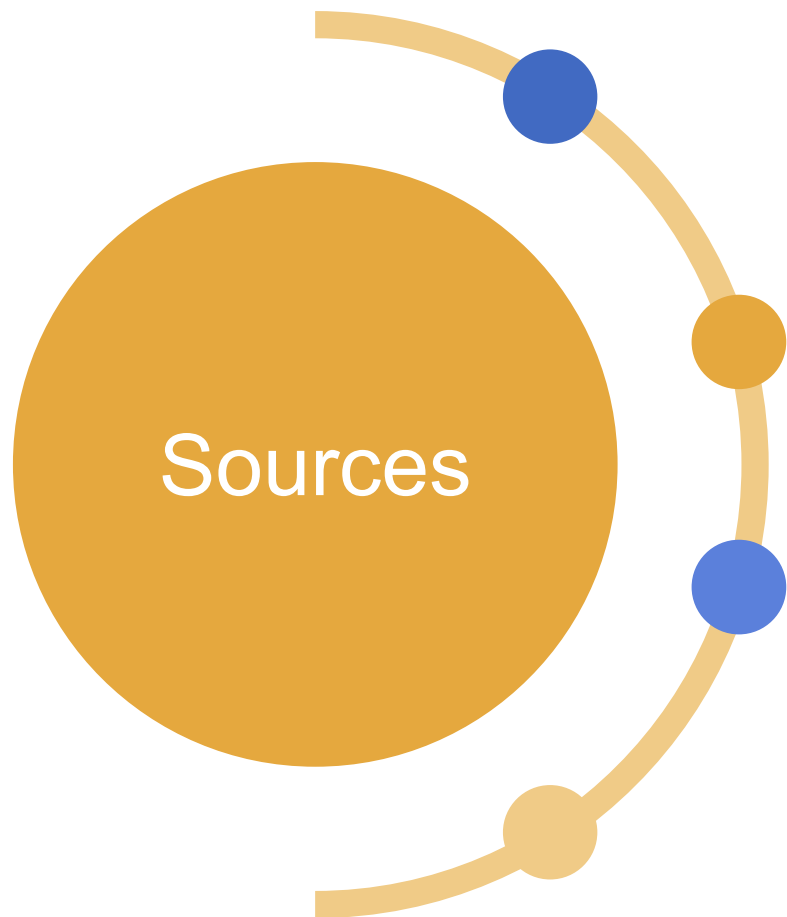
MIE1624 Module





PART 02

Program Curriculum Design



1

Web-scraped data from Indeed

2

Insights from Part 1

3

Similar programs worldwide

Identified skills

Coding & Software

- Python
- R
- Tableau
- ...

Professional

- Data analysis
- Database management
- Data visualization
- ...

Business-oriented

- Communication
- Teamwork
- Leadership
- ...

Program Structure



Time Length

16 months, full-time, 7 credits

Courses

- 2 introductory courses, 4 core courses, 6 elective courses
- 1 co-op term
- 1 capstone project equals to 2 elective courses

Specializations

- Data analysis
- Data science
- Data engineering
- Data management



PART 03

Program Visualization

Master of Data Science and Artificial Intelligence

Become an excellent data professional

In the era of big data today, most enterprises are using big data. Every link of the data industry needs to be completed by professionals. However, the ability to uncover business insights based on data is a highly specialized skills processed by too few people. The supply of data professionals who can derive business insights and make informed decisions from data is far from meeting the market demand.

Master of Data Science and Artificial Intelligence program was designed to address this workforce gap by equipping students with the technical skills, business skills, practical experience, and most importantly, the confidence to seize opportunities in an ever-expanding field.

Program Features



Comprehensive learning

The combination of the theoretical learning and the practical learning



Real-world experience

Students gain practical experience using real data sets across a range of domains



Diverse datasets

Students have chances to apply their theoretical knowledge in the real company business problems.

- Two introductory courses required
- Elective courses

- Co-op work placement



Technical – Oriented

Core Courses

- Machine Learning With Applications In Python
- Data Modeling and Database Management
- Data Analytics: Methods and Practical Approaches
- Introduction to Artificial Intelligence
- Applications with Deep Learning

Elective Courses

- Modeling Tools for Predictive Analytics
- Experimental Design for Data Science
- Storytelling with Data using Tableau
- Research Data and Research Operations
- Forecasting and Time Series Analytics
- Cloud Technology in Data Science
- R for Data Science
- Optimization Techniques
- Stochastic Modeling
- Reinforcement Learning

Business – Oriented

Core Courses

- Business Leadership and Communication
- Data Mining for Business Applications
- Business Problem Analysis and Management

Elective Courses

- Business Immersion
- Analytics in Management
- Supply Chain Management
- Data Driven Investments
- Simulation and Risk Analytics
- Analytics for Marketing Strategy

Specializations



Data Analysis Specialization



Data Science Specialization



Data Engineering Specialization



Data Management Specialization

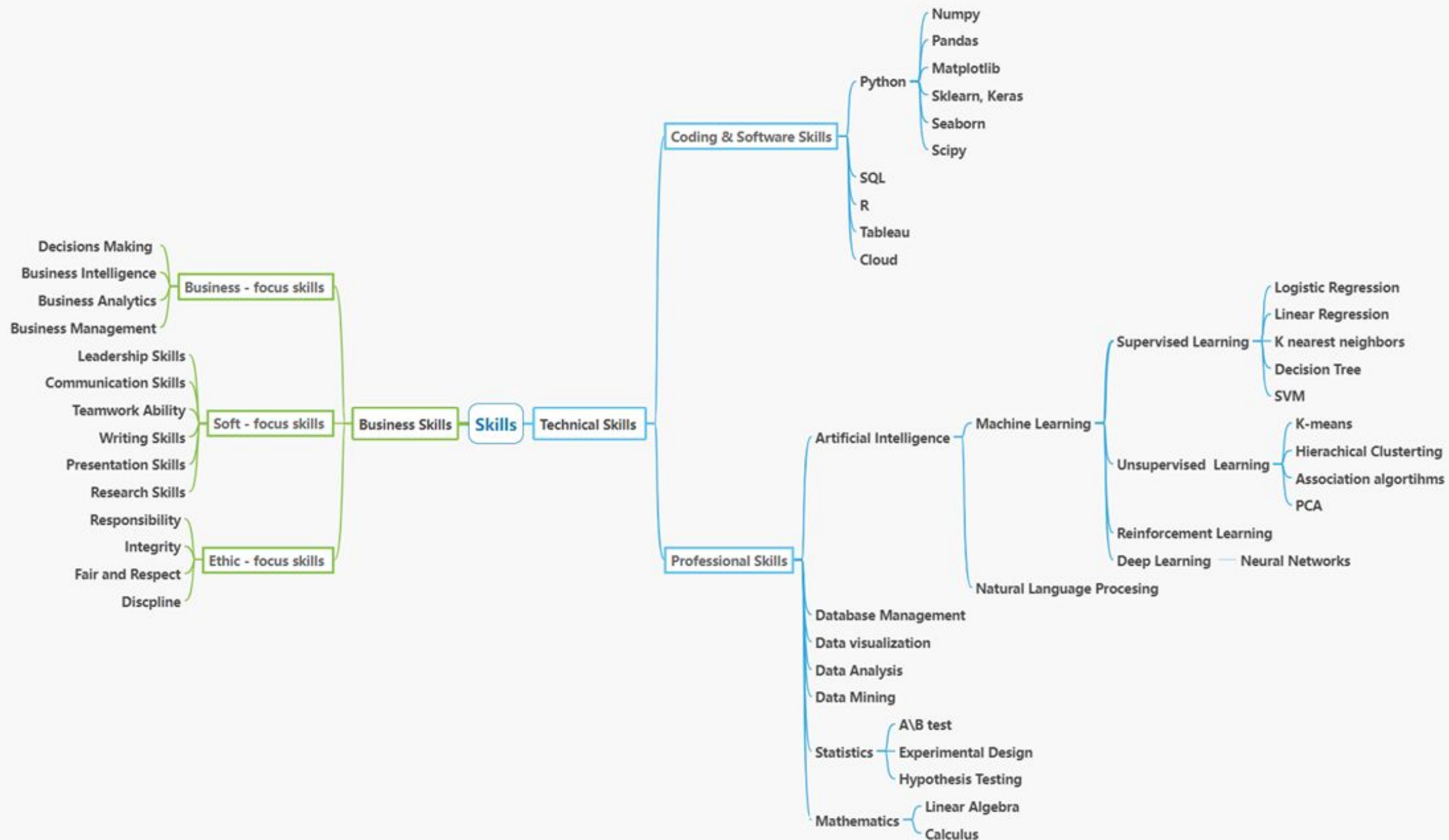
Note: Each specialization has different required core courses and recommended elective courses. Students need to complete those requirement to gain the degree.

Co-op Program

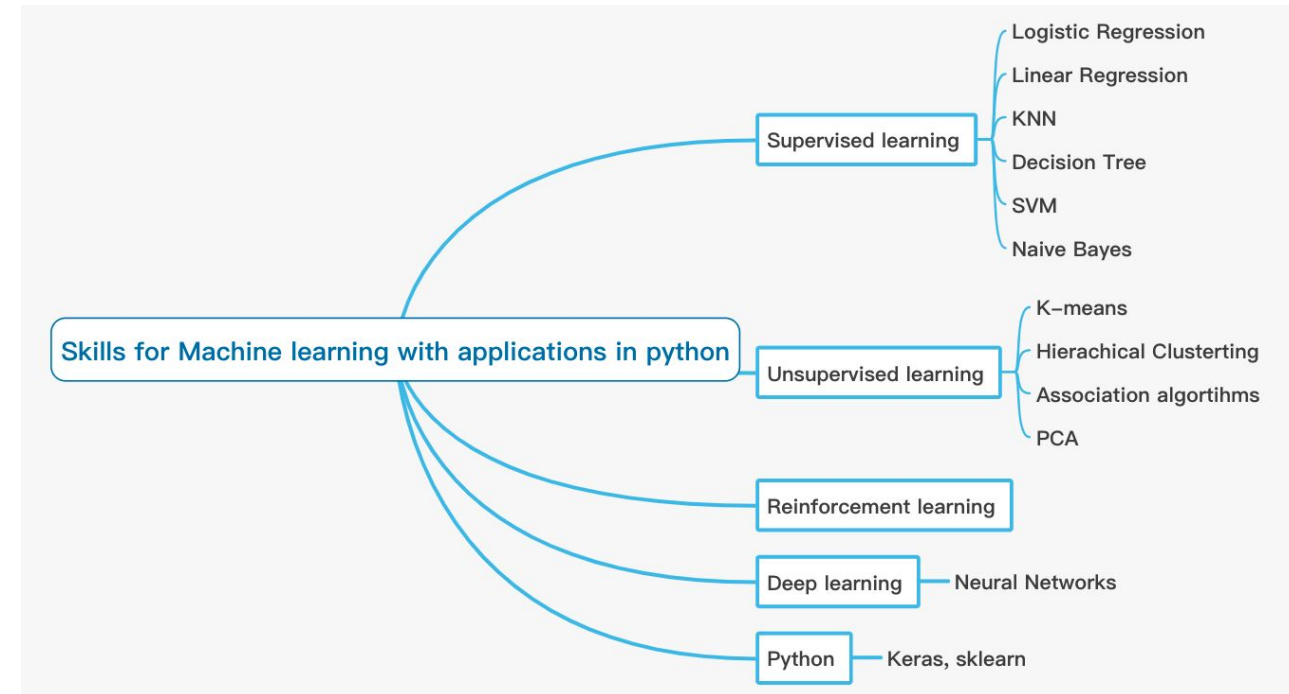
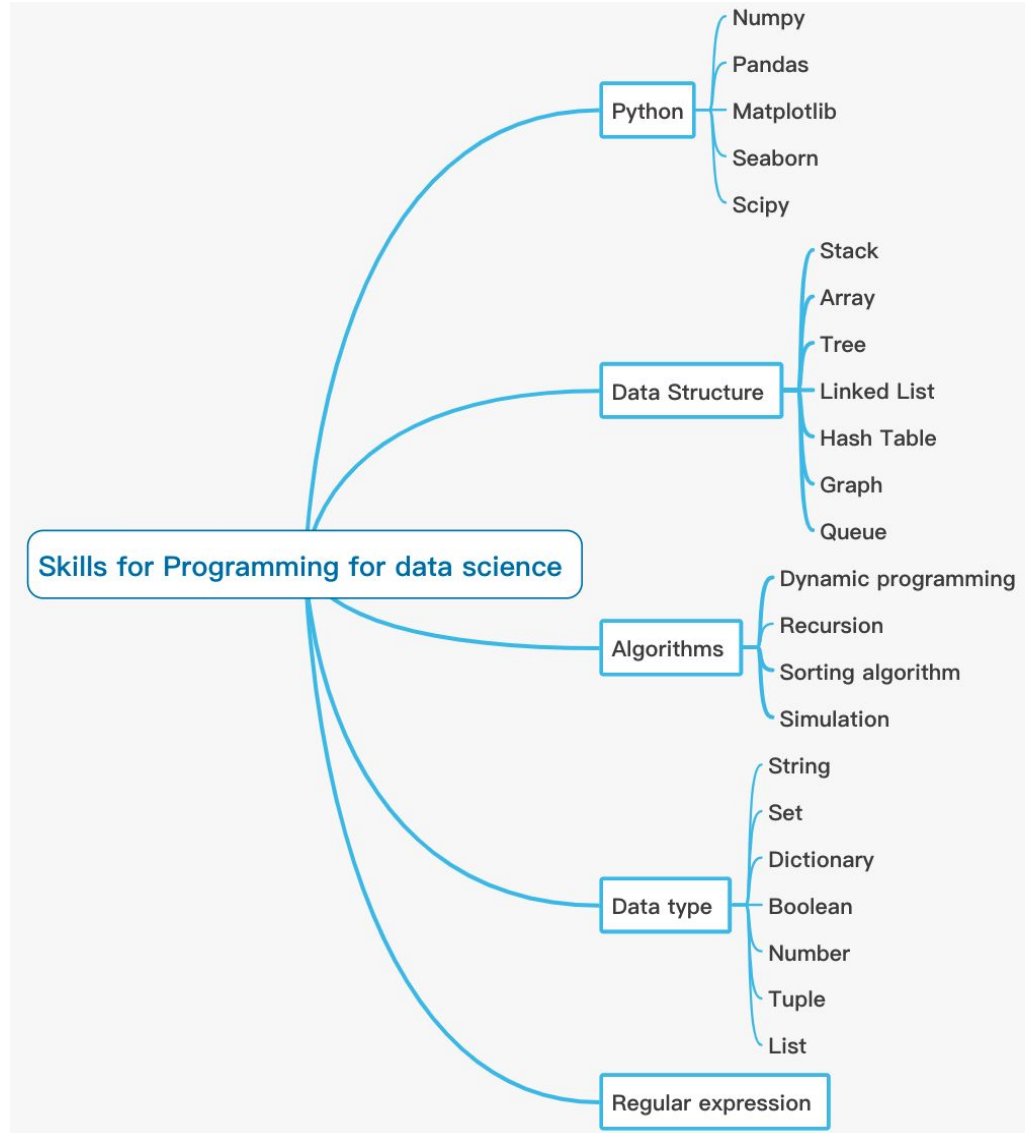
Events & Workshops

Writing Center

Capstone Project



Course visualization





PART 04

Recommender System Design

System Overview

Students enroll in the program and register the DataPro App.

Step 1

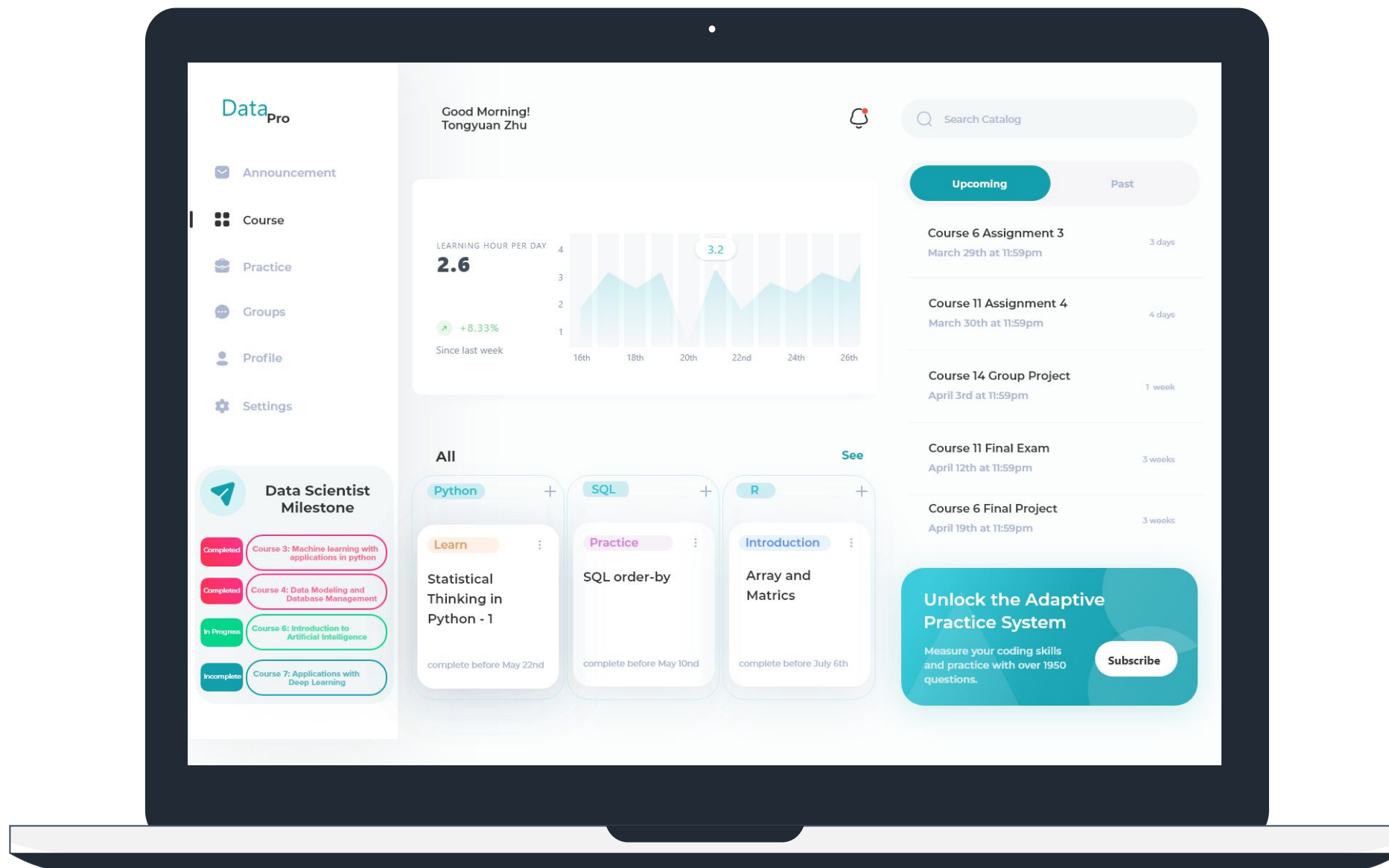
Step 2

Choose the career path that they are willing to take. e.g. data analyst, data scientist. Related introductory and core courses will show in the App.

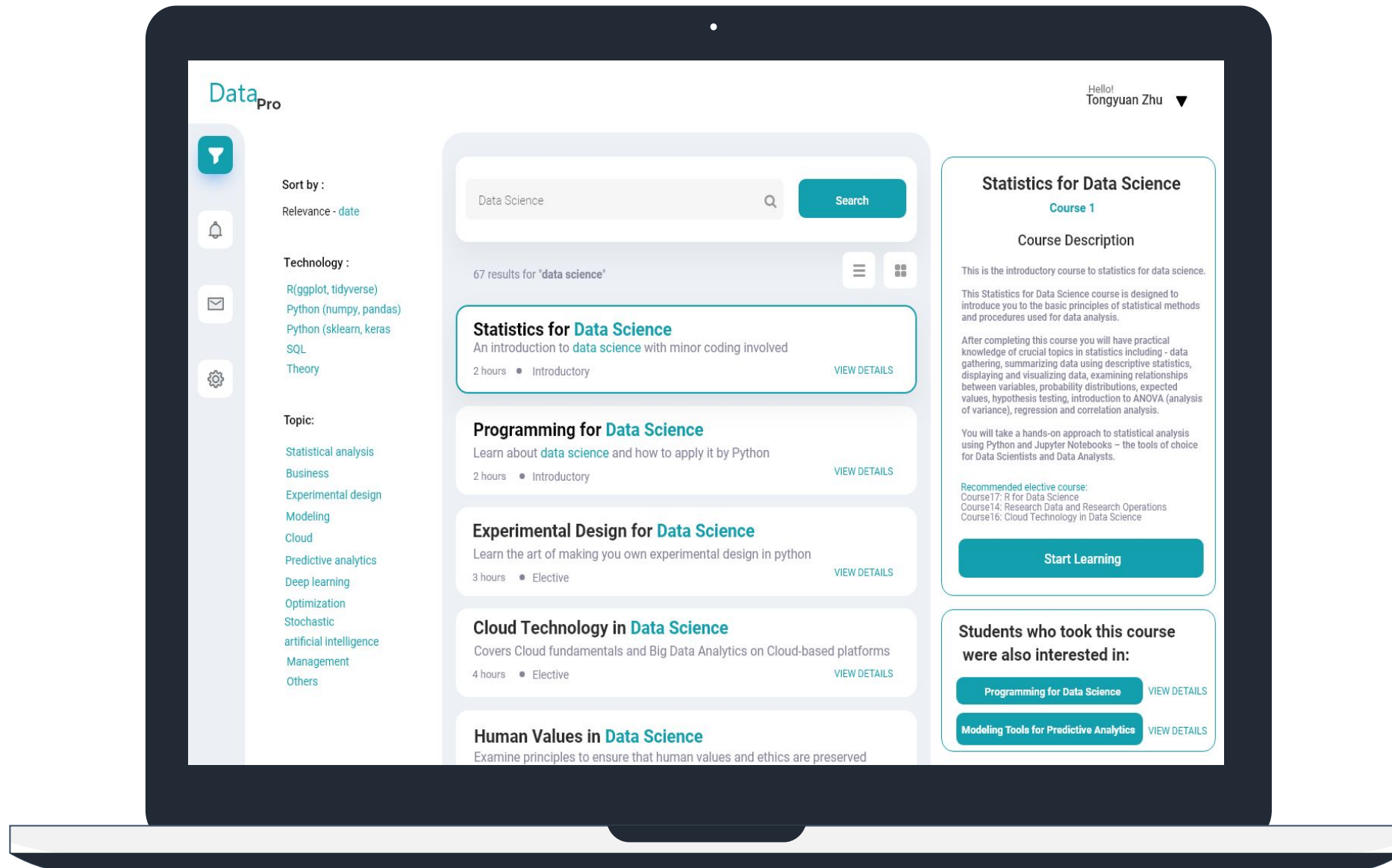
A recommender system is designed to recommend related elective courses based on the content of each introductory and core course.

Step 3

DataPro App Design (Main Page)



DataPro App Design (Search Page)





Thank you!