CI 103 Introduction to Computing and Information Security

Project Proposal Presentation for

Economy Fueler

CONTENT

01

Overview of the Project

Overview of the Project

ECONOMY FUELER

Data

Acquire the financial data from the enterprises.

Analysis

Basic financial analysis based on the specific equations to evaluate their financial status.

Strategy

Exhibit the analysis results and provide corresponding financial advices.

02 Brief Introduction of Our Work

ECONOMY FUELER

Lixiao Yang

Role: Project Manager

- Using MySQL 8.0 to create the relational database
- Refining models through financial material
- Assist in the development of algorithms

ECONOMY FUELER

Jiahe Xie

Role: Technical Director

- Using Django 3.1.7(in PyCharm 2020 3.2 x64), JQuery 3.6.0 and MySQL 8.0 to develop the back end and interact with front end.
- Data visualization using Echart.
- Data transforming using Python.

ECONOMY FUELER

Aoyu Liu

Role: Front End Designer

- Using Django 3.1.7 (together with PyCharm 3.5) and bootstrap 3.4.1 to develop the website and enable it to interact with the users and back end.

ECONOMY FUELER

Xinyue Zeng

Role: Database Designer

- Using joint table & E-R chart to design the relational database.
- Using MySQL 8.0 to create the relational database.

ECONOMY FUELER

Huiru Chang

Role: UI Designer & Finance Modeler

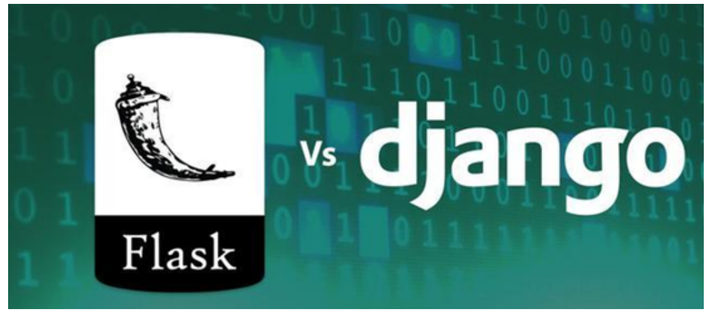
- Using Dreamweaver to design and develop user interface.
- Assist in the financial modeling process.
- Assist in the data processing.

03

Technology Sharing 1: Framework Selection

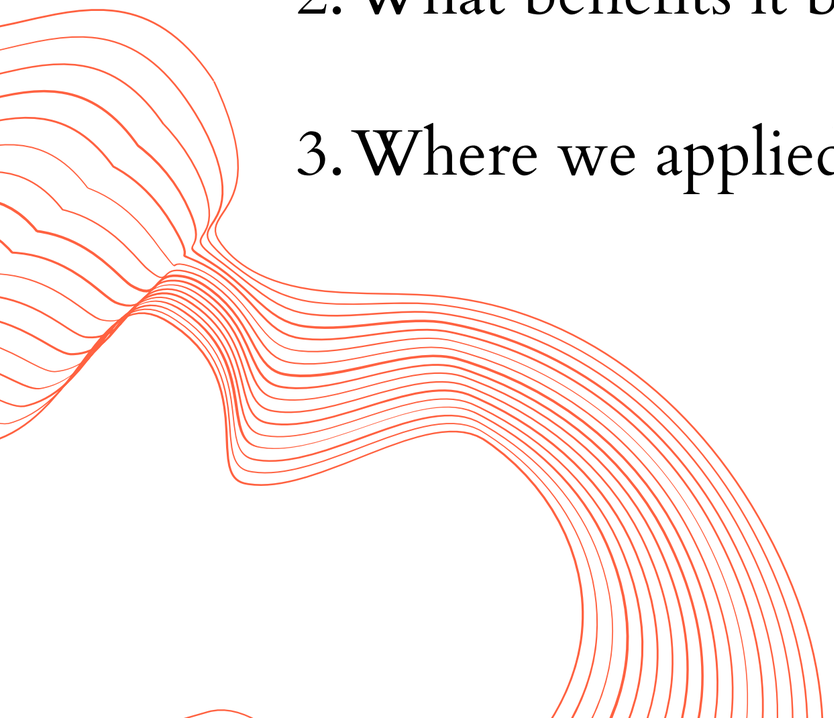
Why we choose to use Django?

1. What we are learning is Python and its IDE PyCharm.
2. Why Django, not Flask or others?
3. Where we applied?



Why we choose to use Bootstrap?

1. What is Bootstrap?
2. What benefits it brings?
3. Where we applied?



04

Technology Sharing 2: Django Features

MTV in Django

Model

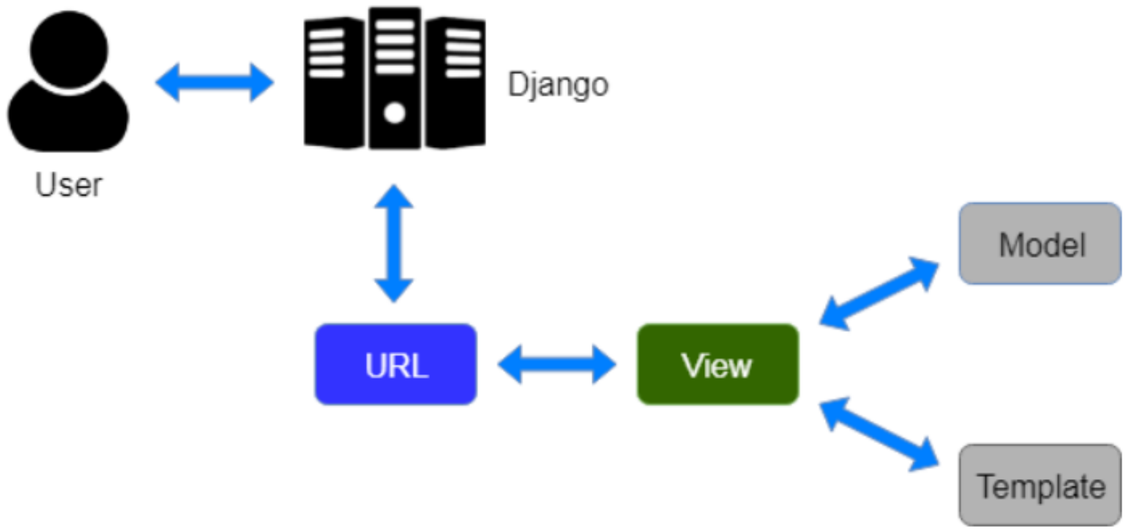
Interact with the database.

Template

Return HTML.

View

Accept the request and process the data(function).



ORM in Django

Object Relational Mapping:

Object relational mapping (ORM, or O / RM, or O / R mapping) is a kind of programming technology, which is used to realize the data conversion between different types of systems in object-oriented programming language. In effect, it creates a "virtual object database" that can be used in programming language. Nowadays, there are many free and paid ORM products, and some programmers prefer to create their own ORM tools.【×】

ORM in Django

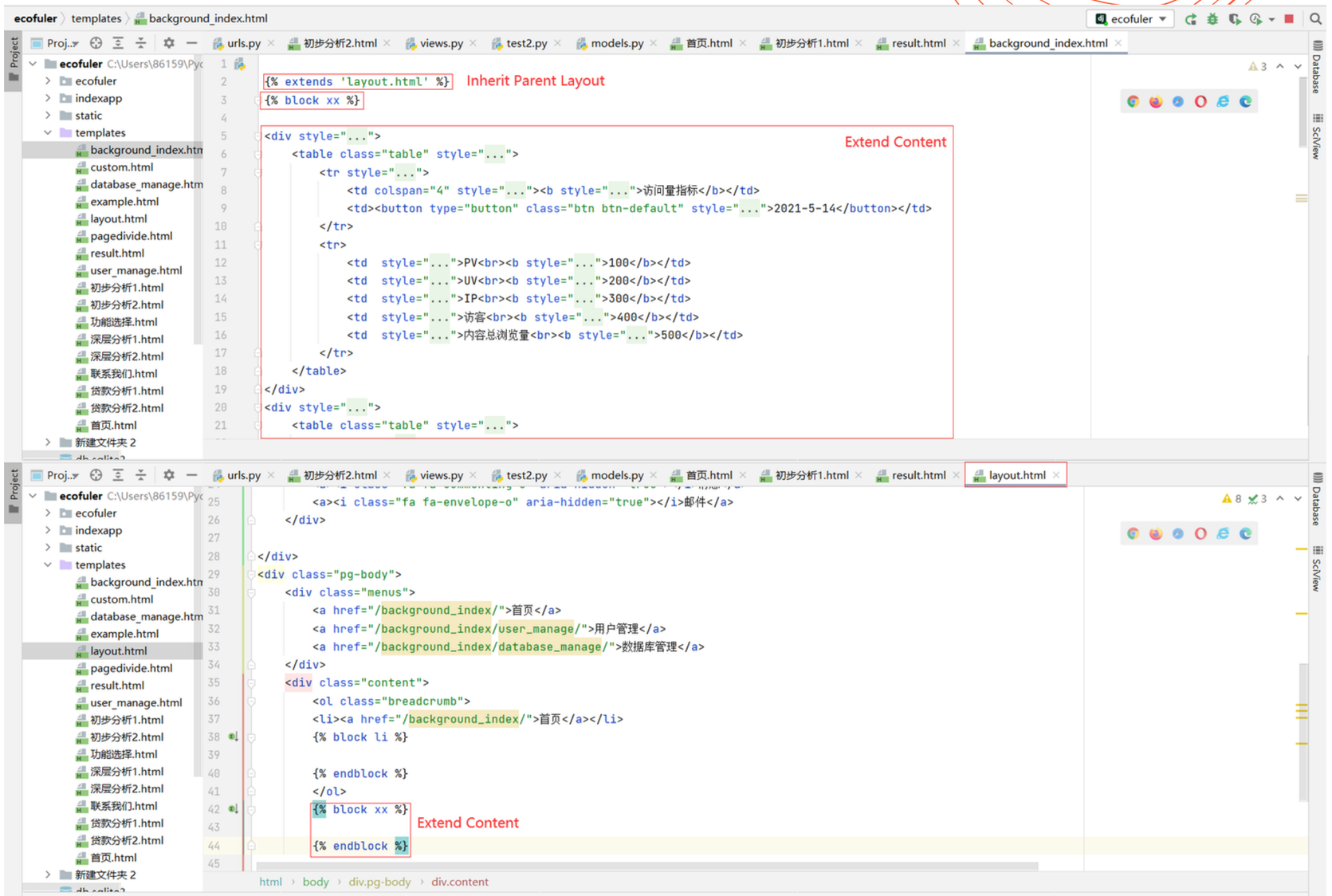
We can say it just does this thing.

```
conn = pymysql.connect(host='127.0.0.1', port=3306, user='root', passwd='a568178499', db='babys', charset='utf8')
cursor = conn.cursor(cursor=pymysql.cursors.DictCursor)
cursor.execute('select id,title from class')      ---------->   obj = models.class.objects.all()
result = cursor.fetchall()
cursor.close()
conn.close()
```

Transform the python statement into SQL statement and connect the database.

Template Language

- Get the data from the back end.
- Inherit layout.



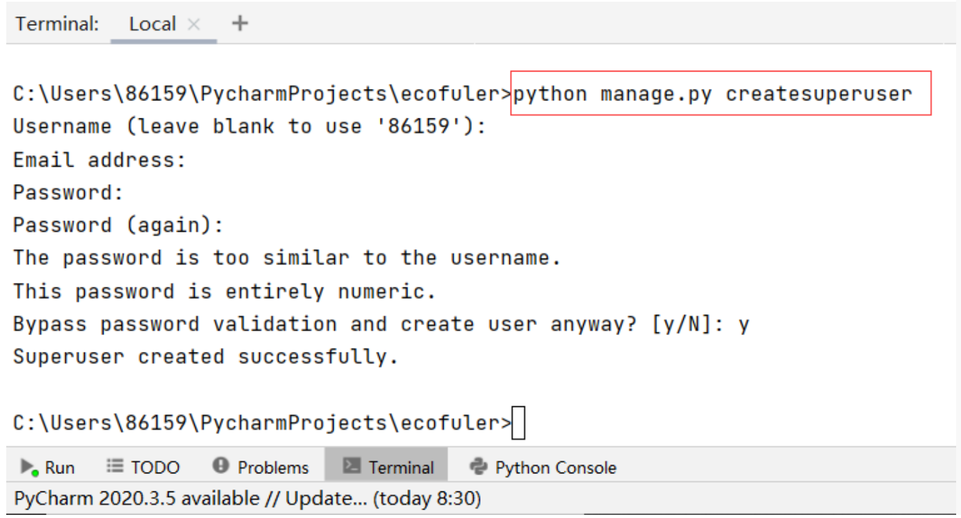
Reload

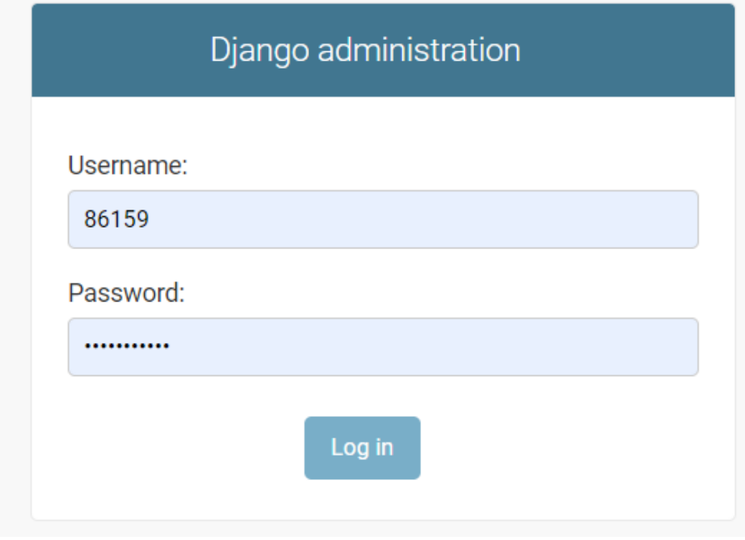
Django can reload the server if you change any scripts or templates.

We don't need to use shift + F10 to reload the server. Django will automatically update the data and reload the server. It saves time and makes it easier to handle the code.

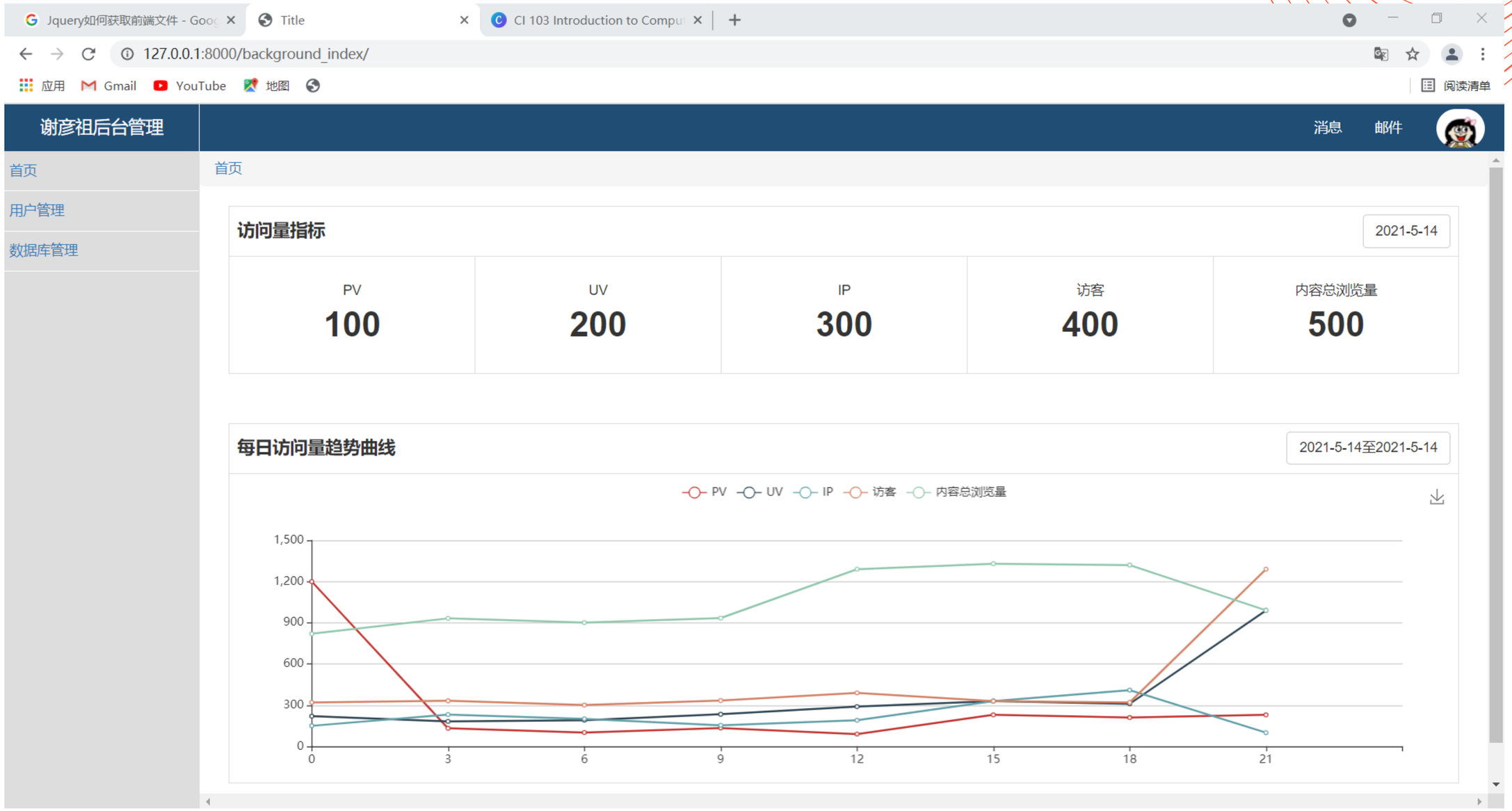
Admin

A default background management system in Django.





Back End View



05

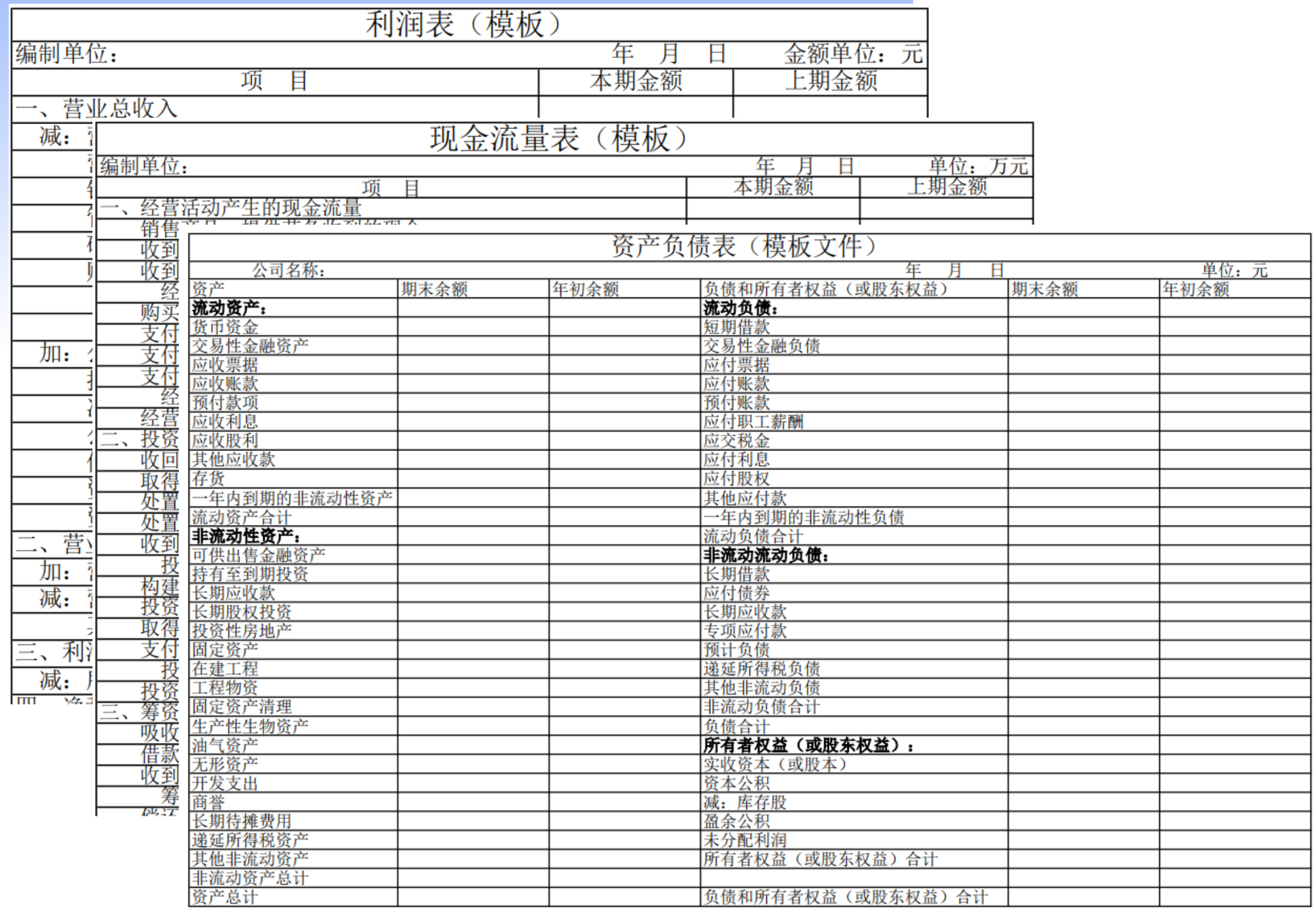
Technology Sharing 3: Database Design

Data Processing

1. Balance sheet

2. Cash flow statement

3. Income statement



利润表（模板）

编制单位：　　年　月　日　　金额单位：元

项　目	本期金额	上期金额
一、营业总收入		

现金流量表（模板）

编制单位：　　年　月　日　　单位：万元

项　目	本期金额	上期金额
一、经营活动产生的现金流量		

资产负债表（模板文件）

公司名称：　　年　月　日　　单位：元

资产	期末余额	年初余额	负债和所有者权益（或股东权益）	期末余额	年初余额
流动资产：			**流动负债：**		
货币资金			短期借款		
交易性金融资产			交易性金融负债		
应收票据			应付票据		
应收账款			应付账款		
预付款项			预付账款		
应收利息			应付职工薪酬		
应收股利			应交税金		
其他应收款			应付利息		
存货			应付股权		
一年内到期的非流动性资产			其他应付款		
流动资产合计			一年内到期的非流动性负债		
非流动性资产：			流动负债合计		
可供出售金融资产			**非流动流动负债：**		
持有至到期投资			长期借款		
长期应收款			应付债券		
长期股权投资			长期应收款		
投资性房地产			专项应付款		
固定资产			预计负债		
在建工程			递延所得税负债		
工程物资			其他非流动负债		
固定资产清理			非流动负债合计		
生产性生物资产			负债合计		
油气资产			**所有者权益（或股东权益）：**		
无形资产			实收资本（或股本）		
开发支出			资本公积		
商誉			减：库存股		
长期待摊费用			盈余公积		
递延所得税资产			未分配利润		
其他非流动资产			所有者权益（或股东权益）合计		
非流动资产总计					
资产总计			负债和所有者权益（或股东权益）合计		

Data Transforming

We consider changing the *.xls into data into database. Python 3.9 allows us to do the work: This code allows us to read every line of excel.

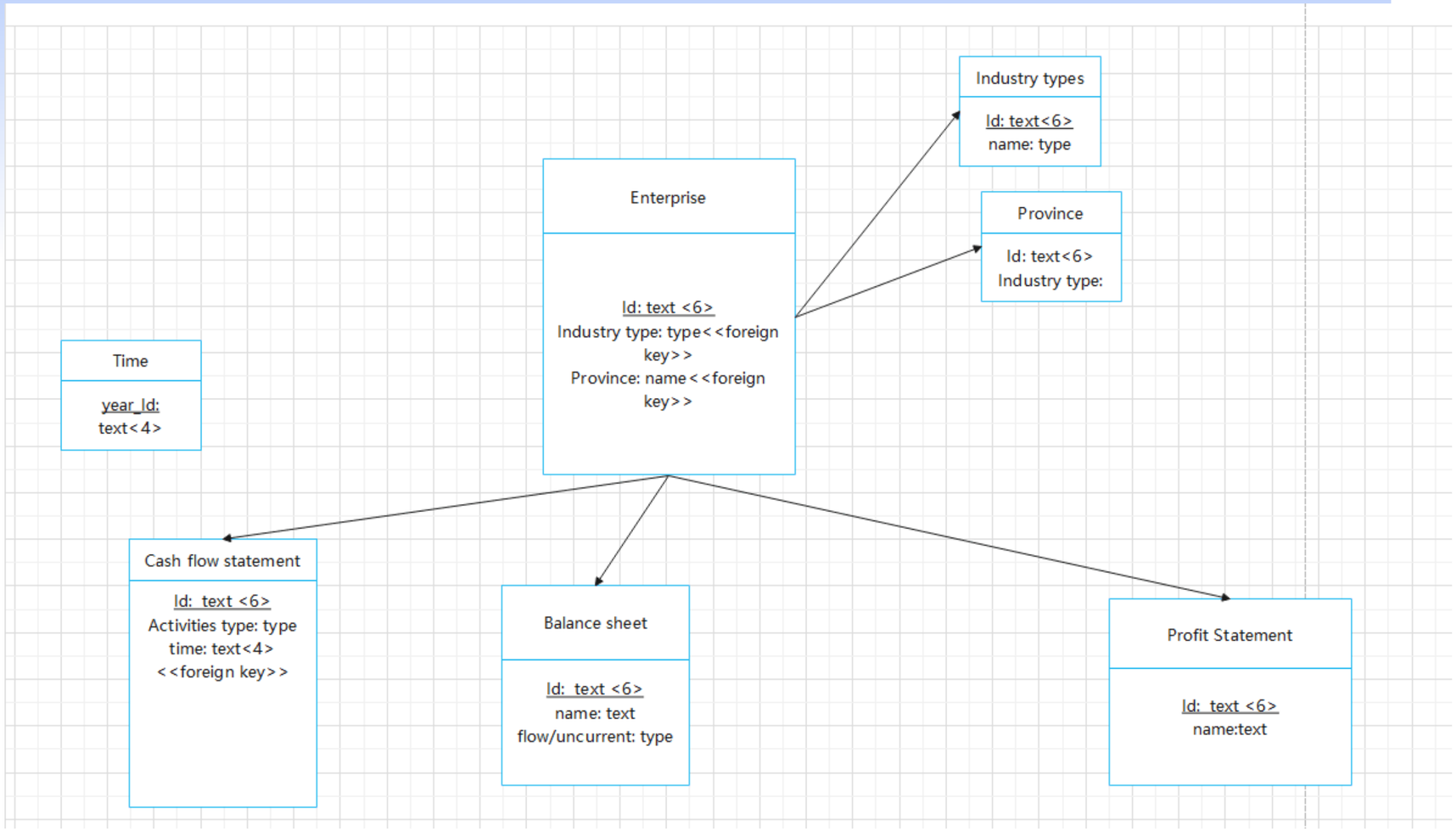
```python
import pymysql
import xlrd

# 连接数据库
try:
    db = pymysql.connect(host="127.0.0.1", user="root",
                         passwd="",
                         db="LzdxDB",
                         charset='utf8')
except:
    print("could not connect to mysql server")


def open_excel():
    try:
        book = xlrd.open_workbook('test.xls')  # 文件名，把文件与py文件放在同一目录下
    except:
        print("open excel file failed!")
    try:
        sheet = book.sheet_by_name("主要经济指标")  # execl里面的worksheet1
        return sheet
    except:
        print("locate worksheet in excel failed!")
def insert_deta():
    sheet = open_excel()
    cursor = db.cursor()
    row_num = sheet.nrows
    for i in range(1, row_num):  # 第一行是标题名，对应表中的字段名所以应该从第二行开始，计算机以0开始计数，所以值是1
        row_data = sheet.row_values(i)
        value = (row_data[0], row_data[1], row_data[2])
        print(i)
        sql = "INSERT INTO testTable(Name1,Name2,Name3)VALUES(%s,%s,%s)"
```

Data Transforming Result

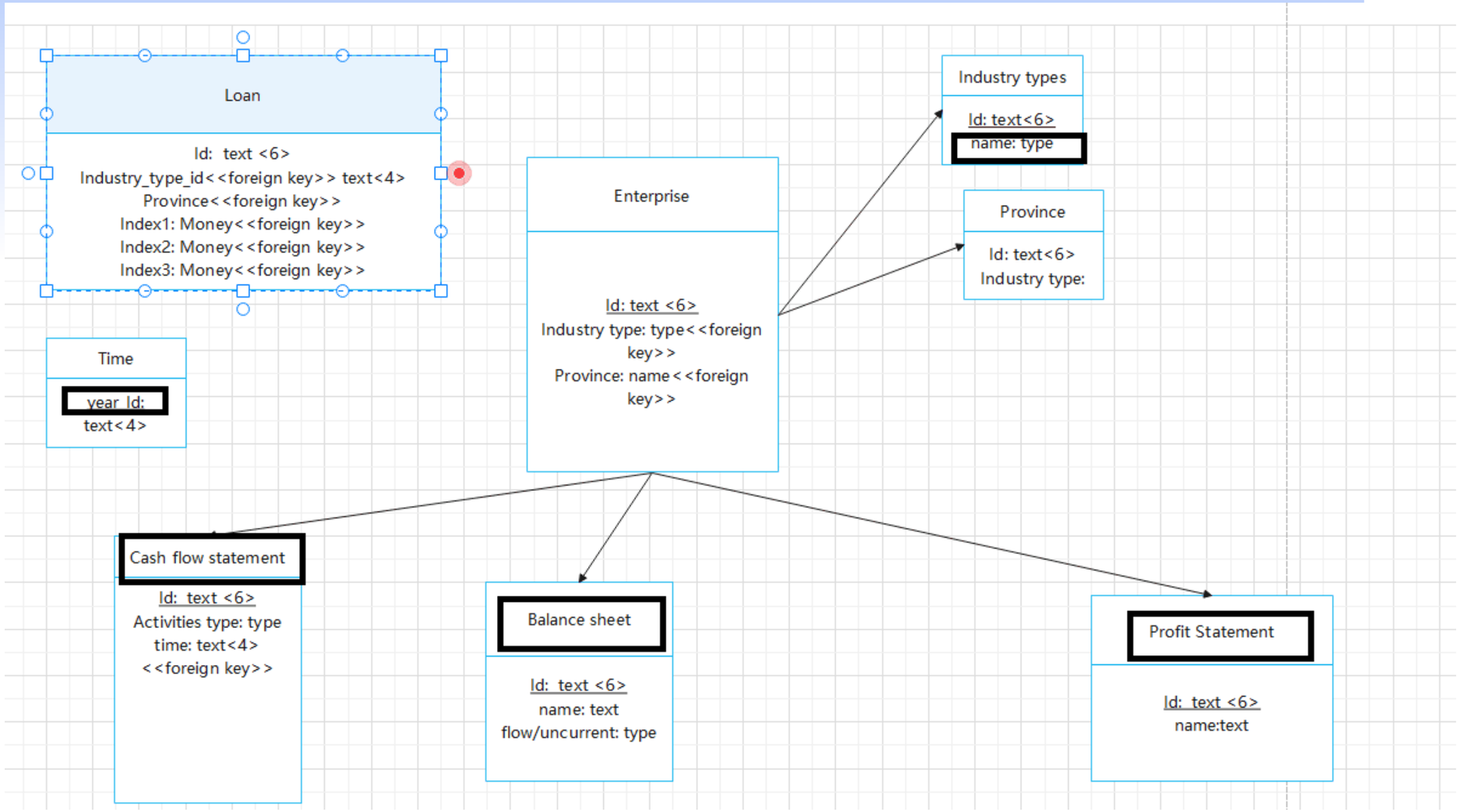
管理员: 命令提示符 - mysql -hlocalhost -uroot -p

电力、热力生产和供应业	2012	4.1.6外商资本
电力、热力生产和供应业	2012	5.主营业务收入
电力、热力生产和供应业	2012	6.主营业务成本
电力、热力生产和供应业	2012	7.主营业务税金及附加
电力、热力生产和供应业	2012	8.销售费用
电力、热力生产和供应业	2012	9.管理费用
电力、热力生产和供应业	2012	9.1税金
电力、热力生产和供应业	2012	10.财务费用
电力、热力生产和供应业	2012	10.1利息收入
电力、热力生产和供应业	2012	10.2利息支出
电力、热力生产和供应业	2012	11.投资收益（损失以“-”号记）
电力、热力生产和供应业	2012	12.营业利润
电力、热力生产和供应业	2012	13.利润总额
电力、热力生产和供应业	2012	14.亏损企业亏损额
电力、热力生产和供应业	2012	15.应交增值税
电力、热力生产和供应业	2012	16.应交所得税
燃气生产和供应业	2012	1.工业销售产值（当年价格）
燃气生产和供应业	2012	1.1出口交货值
燃气生产和供应业	2012	2.资产总计
燃气生产和供应业	2012	2.1固定资产合计
燃气生产和供应业	2012	2.1.1固定资产原价
燃气生产和供应业	2012	2.1.2累计折旧
燃气生产和供应业	2012	2.2流动资产合计
燃气生产和供应业	2012	2.2.1应收账款
燃气生产和供应业	2012	2.2.1.1存货
燃气生产和供应业	2012	2.2.1.1.2产成品
燃气生产和供应业	2012	3.负债合计
燃气生产和供应业	2012	3.1流动负债合计
燃气生产和供应业	2012	3.1.1应付账款
燃气生产和供应业	2012	4.所有者权益合计

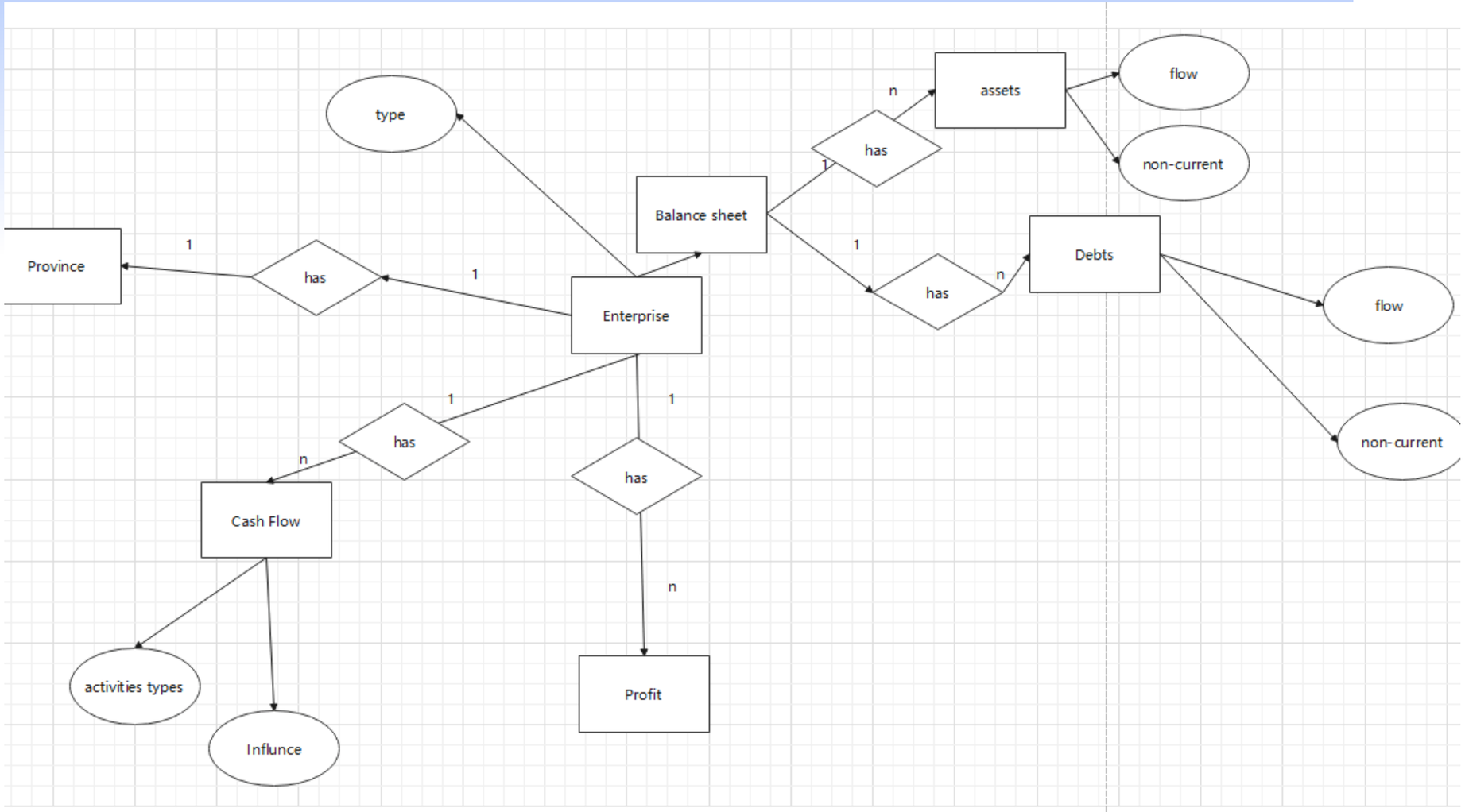
Database Design (1): Data Schema



Database Design (2): Joint Table



Database Design (3): Entity-Relationship Graph



Thank You for Listening