University of British Columbia, Vancouver
Department of Computer Science

CPSC 304 Project Cover Page

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Group Number: ___90_____

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By typing our names and student numbers in the above table, we certify that the work in the attached assignment was performed solely by those whose names and student IDs are included above. (In the case of Project Milestone 0, the main purpose of this page is for you to let us know your e-mail address, and then let us assign you to a TA for your project supervisor.)

In addition, we indicate that we are fully aware of the rules and consequences of plagiarism, as set forth by the Department of Computer Science and the University of British Columbia

exchangeName
stockPrice
marketCap
sharesOutstanding
stockExchange
listedOn
companyName
dateListed
ipoDate
companyName
revenue
ebitda
earnings
assets
liabilities
finances
companyName
reportDate
balances
name
netWorth
educationLevel
age
gender
ceo
dateStarted
companyName
manages
industryName
growthRate
AvaragePeRatio
TotalRevenue
numOfFirms
industry
activeIn
activeSince
companyName, industryName
ISA
founder
foundingYear
isSoleFounder
company
companyName InvestorName
amountInvested
invests
investors
investorName
isVentureCapitalist
companyName
product
ticker
ISA
origin
companyName
acquiredCompany
priceAtAquisition
yearAcquired
country
has
culture
countryName
democracyIndex
primaryLanguage
countryName
cultureName
powerDistance
individualismVsCollectivism
masculinityVsFemininity
uncertaintyAvoidance
longVsShortTerm
IndulgenceVsRestraint

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CPSC 304 Project Proposal

Domain

What is the domain of the application (area of knowledge the application resides in)? What is your project trying to address?

→ The project will be in the domain of Business, more specifically corporate businesses and market evaluations.

- The database contains interesting and relevant attributes of publicly traded companies
- It provides information necessary to evaluate businesses and their worth, including stock prices, finances, culture and origin/nationality, and founders/CEOs.
- There are several possible extensions of the project if time allows: to consider companies listed outside of North America, to include private companies, and to build algorithms that perform company valuation based on the content of the database.
- Our DB models the corporations and how they fit in their respective markets and their performances as well as aspects of the business domain, since the goal of our DB is to contain information regarding the value of a company on the market, beyond the scope of the stock price.

Functionality

What functionality would this database provide?

The database would allow you to query information so the user could make their own evaluation of a company. For instance, the user may value a company based on its market performance origin or its financial records, or perhaps the country of origin, in which case the user can retrieve this information from the DB and make their own inferences.

A possible extension to this is that we would also make our own evaluation upon requesting a query. An example of such an algorithm would be that the application calculates an industry-specific *revenue multiple* (using information from the industry relation). This multiple can be used to evaluate a company based on its revenue. The

user can then be presented with this valuation along with the current market cap of the same company (derived from the stock exchange relation), and a conclusion can be drawn - is the company overpriced or under-priced on the stock market?

Tech stack

What platform will the final project be on? What is your application technology stack?

Our platform will use PHP as it is recommended and all group members look forward to learning PHP. Vanilla HTML/CSS/JavaScript will be used on the front-end in order to keep it simple, as the focus of the project is the database aspect. A possible extension if time allow is to use a JS framework, e.g. React. JavaScript is preferred by the group over TypeScript as all members more experienced in JS. The provided Git repository will be used.

Appropriate ER diagram notation

1. **Entities**
    1. **Company**
        1. The companies are at the core of the database. We include publicly traded companies on selected stock exchanges. As the baseline, private companies are excluded and hence there is a participation constraint from companies to the ***listed on*** relationship.
        2. Data source: stock exchanges.
    2. **Acquired Company**
        1. In ISA-relationship with companies, as many large publicly traded companies make several acquisitions.
        2. Data source: manual research
    3. **Industry**
        1. In broad terms, what industries are companies active in? What characterizes these industries? What valuation multiples are common across the industries?
        2. Data source: https://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/histgr.html
    4. **CEOs**
        1. The CEO is the individual that has the most impact on a company's stock price. This entity stores information about the CEO.
        2. Data source: manual research
    5. **Stock Exchange**
        1. The stock exchange on which the companies are listed.

    2. Data source: manual research
6. **Finances**
    1. The publicly available finances of each company. Includes only basic metrics.
    2. Data source: publications on the stock exchange
7. **Country (demographics)**
    1. The country of origin will be relevant to a company, as it describes not only relevant details of the consumer base of the company but also details about the company's potential to grow from being based in the country.
    2. Datasource: Manual Research
8. **Culture**
    1. Cultural attributes that represent certain aspects of a country and different indexes of information regarding the demographic.
    2. Hofstede's Six Dimensions of Culture ranking: https://www.mindtools.com/a1ecvyx/hofstedes-cultural-dimensions
    3. Data source: https://www.researchgate.net/figure/CULTURAL-ATTRIBUTES-BY-COUNTRY_tbl1_5222932