DESIGN AND ANALYSIS OF ALGORITHM (CSE3037)

REPORT ON FINANCE TRACKER

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ABSTRACT:

Finance Tracker is a tool which deals with expanse management system in day-to-day life a person's transactions. Here, this tool displays the daily expense of a user. The use of the Finance Tracker is to record the transactions of daily activity and display a clear cut information about the transactions. By using this finance tracker user can understand easily that how to manage his expenses, By that he can understand what are the unnecessary transactions and he think how to reduce the useless in day to day life. Where we can also see the transactions in graph (or) in the form of a pie chart. By using this finance tracker we can reduce the useless transactions and we can understand how to save the money. Here, in our code it shows how to spend the expenses according to our budget with the help of Greedy Algorithm, which follows a step-by-step process.

KEY WORDS: Transactions, budget, Expenses, savings, management System, Greedy Algorithm.

INTRODUCTION:

A Finance Tracker is a valuable tool which can gain a control on your financial transactions and their expenses. By seeing all the transactions we can set some financial goals for any investment and savings. It is also called as Expense tracker. It helps a person to monitor and manage their financial transactions, expenses, budget and savings. This tool will record all the transactions, expenses, budget, savings and give a clear (or) detailed information about all the transactions.

The primary purpose of this finance tracker is to record and display all the transactions information which helps us to make a correct decision about our transactions about the money. Below it shows some of the uses of the financial tracker:

➤ Here, Users can keep track of and organize their spending with a finance tracker, which gives them a comprehensive breakdown of their financial outlays. This aids users in tracking their spending, spotting trends in their spending, and changing their spending behaviours.

➤ Budgeting tools that let users set financial goals, divide money into various categories, and monitor their progress are frequently included in finance trackers. Users can save money, achieve their financial goals, and better manage their income and expenses by making and following a budget.

➤ Users of many finance trackers can establish specific financial objectives, like debt repayment, emergency fund building, or vacation savings. By showing users how they are doing in relation to these goals visually, these tools encourage users to stay on course and make the necessary corrections in order to meet their goals.

➤ Finance trackers allow users to automatically import and categorize transactions by connecting to their bank accounts, credit cards, and other financial institutions. This

gives users an accurate and up-to-date overview of their financial activities while saving time and effort on manual data entry.

➢ Users can gain insights into their spending habits, market trends, and financial well-being by utilizing the data visualization and analysis tools offered by certain finance trackers. Users can maximize their spending, find areas for cost savings, and make better financial decisions with the aid of these insights.

➢ Bill tracking functions are a common feature of finance trackers, which assist users in keeping track of their regular costs, including loan payments, subscriptions, and utility bills. Notifications can be sent, reminders can be set, and missed or late payments can be prevented.

For making this Finance Tracker we are going to use Greedy Algorithm because It optimizes the problem and go to step-by-step process. For many optimization problems greedy algorithm can be used.

It always selects what appears to be the best option right now. A few different kinds of greedy algorithms exist. Mainly:

1. Prim's Algorithm

2. The Algorithm of Kurskal

3. The least expensive spanning tree

4. Dijkstra's Formula.

And many…..

How to use the greedy algorithm? (basic information)

1. Feasible: In order to return at least one solution to the problem, the algorithm must adhere to all restrictions.

2. Local optimal choice: Select the best options among those that are currently accessible.

3. Unchangeable: Once a decision is executed, it cannot be changed at a later time.

PROBLEM STATEMENT:

Mr. Suresh is working in X company who's salary is 30,000/- per month. His mother gave him 20,000/- for monthly expenses but he don't know how much should he spend on expenses?

➢ The above problem can be solved by using a finance tracker where it displays the information what to buy according to his budget and the input he has given about his expenses.

OBJECTIVES:

Mainly, to keep the expanses organized and display the proper information about the transactions to the user.

- ➢ Monitoring financial activities:
  Users of finance trackers can monitor their earnings, outlays, investments, savings, and other financial activities. People and companies can improve their financial health and make wise decisions by keeping an eye on these activities.
- ➢ Budget and Expenses Tracking:
  A finance tracker's main goal is to assist users in creating and adhering to a budget. Users can use it to track their spending patterns, set spending limits, and organize their expenses. This can assist in locating areas where costs can be optimized or decreased.
- ➢ Goal Setting and Tracking:
  Financial goal-setting and progress monitoring are common features found in finance trackers. These objectives might be paying off debt, setting up an emergency fund, saving for a particular purchase, or making retirement plans. Users can maintain motivation and, if necessary, modify their financial strategies by monitoring their progress.
- ➢ Financial Analysis and Report:
  It frequently offers resources for creating reports and doing financial data analysis. These reports can offer information about sources of income, investment performance, spending habits, and general financial trends. Users can find areas for improvement and make well-informed decisions with the aid of such analysis.

NOVELTY OF THE PROJECT:

- ➢ Reduce Expenses:
  By enter all information about expanses in finance tracker we can categorize how much we can spend the money about the things.
- ➢ Financial Goal Settings:
  By seeing the monthly expense of everything we can set a goal to save this much money every month.
- ➢ Debt Management:
  One of the other goals of a finance tracker is to monitor debt. It assists people in keeping track of their loan balances, interest rates, and due dates. People who are visualizing their debt situation can come up with plans to reduce interest and pay off debt more quickly.
- ➢ Financial Awareness:
  By giving a clear picture of one's financial condition, a finance tracker encourages financial awareness. It assists people in understanding their cash flow, spotting trends, and coming to wise financial decisions.

LITERATURE SURVEY:

The research paper is mainly focused on designing and developing a budget app by using the greedy method To analyse the customer needs to satisfy is the main part of objectives,Testing the usability of the mobile app.Literature survey is mainly focused on finance ratio for both companies and small families.We made survey in companies about the finance management the acknowledge we got Were discussed in detailed manner

The Automatic Sharing of Financial Data and More

The Automated Sharing of Financial Data and More With the 2008–2009 financial crisis, there has been a notable reduction in bank secrecy. Tax havens declined to provide any information to foreign tax authorities before 2008. However, the Foreign Account Tax Compliance Act, which was passed by the US Congress and signed into law by President Obama in 2010, forces foreign banks, under threat of economic sanctions, to automatically report accounts held by US taxpayers to the IRS annually.

Regardless of the benefits and drawbacks of these problems, FATCA has been the catalyst for a shift in the laws that formerly controlled offshore banking.

Three major potential barriers stand in the way of current enforcement efforts:
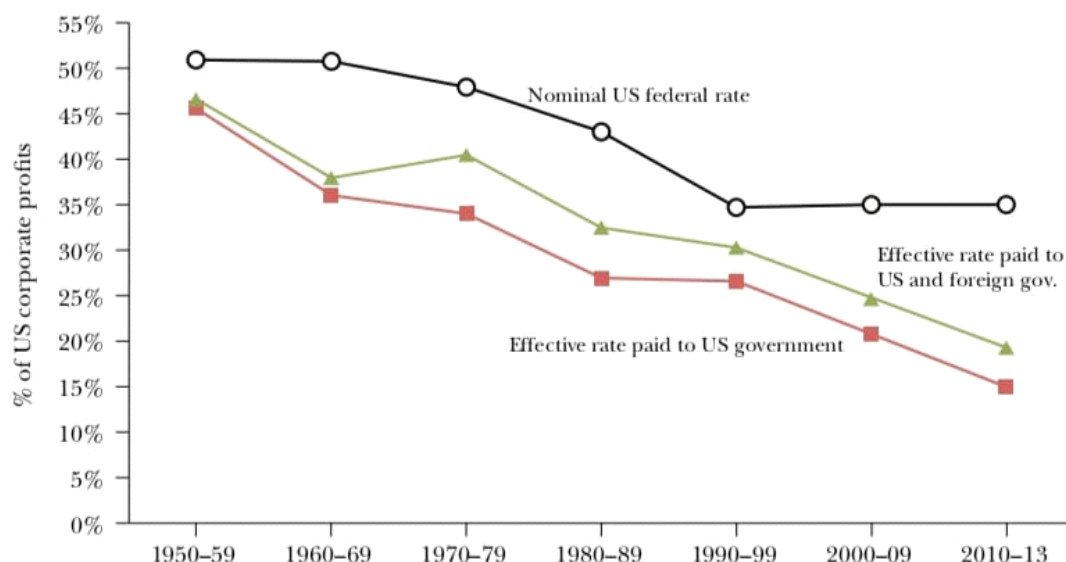
gaining compliance from offshore bankers

tackling the opaqueness of global financial record-keeping

 ensuring that offshore finance stays in unregulated areas.

The Loss of Revenue from US-Owned Companies' Corporate Tax Avoidance

Nominal and Effective Corporate Tax Rates on US Corporate Profits

Many of the shortcomings in the League of Nations plan were anticipated by their experts. British economists were especially dubious. However, globalization backtracked as soon as the corporation tax concepts were established in the 1920s. Roughly 5% of all US corporate earnings from the Great Depression to the 1960s came from overseas profits.

A Global Financial Index:

Without much help from other countries, the US could completely overhaul its corporate taxation structure. For instance, the US might unilaterally do away with arm's length pricing, raise the personal dividend tax rate, tax corporations on their worldwide profits (using an apportionment formula), refund corporate taxes back to shareholders, and do all of this in a way that would not increase tax revenue.

Could there be a global financial registry?

There are several practical challenges. I will also discuss some political challenges, such as privacy concerns, at the end of the paper.

Acknowledge about survey in small families and small business:

As per your research emotional reasons for financial decisions are: People make financial decisions based on their emotional, historical, familial and personal backgrounds in addition to financial considerations.

Finances & Worries:Harini was 21 years old and had recently finished graduated from College for her higher studies she had been offered a full scholarship at a 10 th ranked University ,but instead had chosen to enroll at a 2 nd ranked University in Bangalore. To pay for his higher studies, he had taken on roughly $34,000 in debt. She had decided to live off her salary as an educator and put all of his salary from his job as an attorney towards paying off his student debt as fast as possible.

When we asked him to draw a map of his finances, this debt loomed large His financial life was dominated by this debt, and it was a source of ongoing worry for him that shaped his perception of himself and the role he played in social relationships In these finace is consider as the dominating factor

managing pots of money:

In a largely historical analysis, we got some clarity that money in a household is rarely treated as homogenous it's totally depends on origin and intended use

Eg for origin uses are: Wages,investments gambling,windfalls,inheritance

 Eg for intended uses are: groceries , school ,fees,vacations,loans

people treat money differently We found that people divided both assets and expenses up ...

according to different intentions: money for the kids college fund a credit card kept for wedding expensesWe call these pots of money as siloed.Depend on the intension of Saving and family situationswhich money may be added or removed.

Small business:if your a college student or colleagues in some other company Make sure that you have Small business apart from many businesses Which will help you financially

Eg: A person who works on IT company and he also as own market as a small business.As we known about IT Job is temporary it's not permanent If in case he loose his job, small business will help him finance He won't suffer a lot,So small will always help you in difficult situation.

Methodology:

In an attempt to find a global optimum solution, an algorithmic strategy known as a greedy algorithm selects the option that is locally optimal at every stage. Put another way, it selects the best option that is currently available without taking into account potential or future consequences.

In some circumstances, the greedy algorithm can be an excellent strategy for a financial tracker. The fundamental idea behind it is to always choose the option that is locally optimal in the hopes that this will eventually result in the best solution.
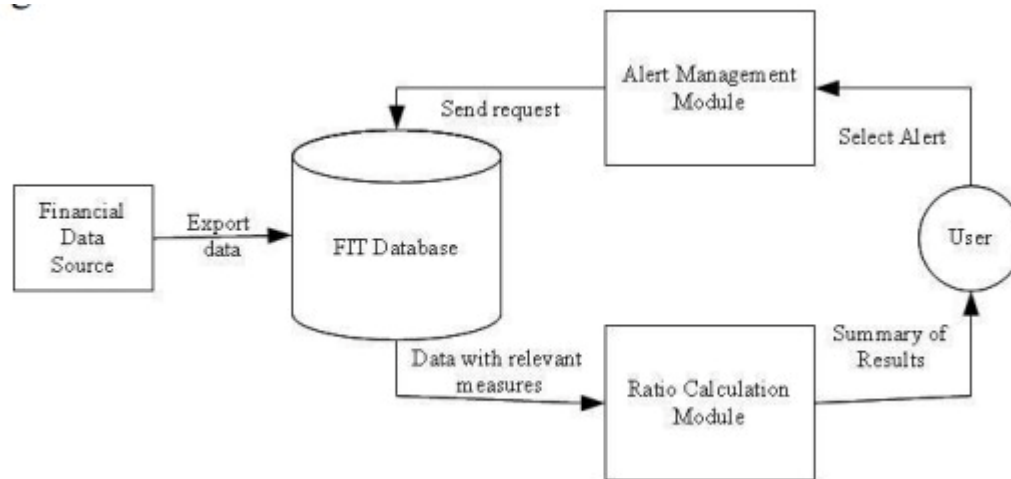
An algorithm that prioritizes expenses based on urgency or importance could be considered greedy in the context of an expense tracker. For instance, you could use the greedy algorithm to choose the expenses with the highest priority until all of your available funds are used up if you have limited funds and need to decide which expenses to cover first.

It's crucial to remember that the greedy algorithm might not always provide the best answer. It might fail to take into account some dependencies or factors, which could lead to a less-than-ideal result. Therefore, it's crucial to examine the particular needs and limitations of the system to make sure it aligns with your intended outcome before implementing a greedy algorithm for a finance tracker.
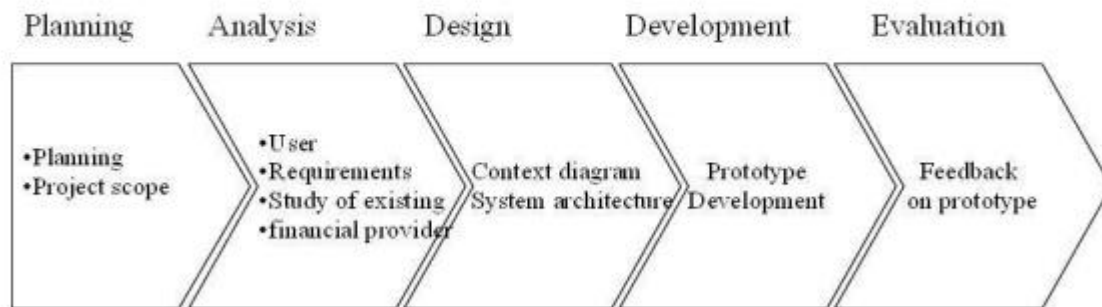
All things considered, a greedy algorithm might be a helpful tool for an expense tracker since it offers a simple method of setting spending priorities depending on certain parameters.

Data base used to implement the project:

Methodology:

FLOW CHART:

```
                    ┌─────────────┐
                    │    START    │
                    └──────┬──────┘
                           │
                           ▼
              ┌────────────────────────┐
              │  Expenses class which  │
              │  has amount and        │
              │  description           │
              └────────────┬───────────┘
                           │
                           ▼
              ┌────────────────────────┐
              │ Finance Tracker class  │
              │ which will have list   │
              │ of expenses which      │
              │ tracks the expense     │
              │ with in the budget     │
              └────────────┬───────────┘
                           │
                           ▼
    ┌────────────────────────────────────────────┐
    │        ┌─────────────────────┐              │
    │        │     Main class      │              │
    │        └──────────┬──────────┘              │
    │                   ▼                         │
    │                 ◇◇◇◇                        │
    │               ◇◇    ◇◇                      │
    │             ◇◇        ◇◇                    │
    │           ◇◇            ◇◇                  │
    │         ◇◇                ◇◇                │
    │      ┌─────────┐      ┌─────────┐           │
    │      │  Enter  │      │  QUIT   │           │
    │      │Descripti│      │         │           │
    │      │on and   │      └────┬────┘           │
    │      │amount.  │           │                │
    │      └────┬────┘           │                │
    │           │  ┌──────────┐  │                │
    │           └─▶│Enter Daily│◀─┘                │
    │              │  Budget  │                   │
    │              └────┬─────┘                   │
    │                   ▼                         │
    │        ┌──────────────────────┐             │
    │        │Print Selected Expenses│            │
    │        └──────────────────────┘            │
    └───────────────────┬────────────────────────┘
                        ▼
                 ┌─────────────┐
                 │     END     │
                 └─────────────┘
```
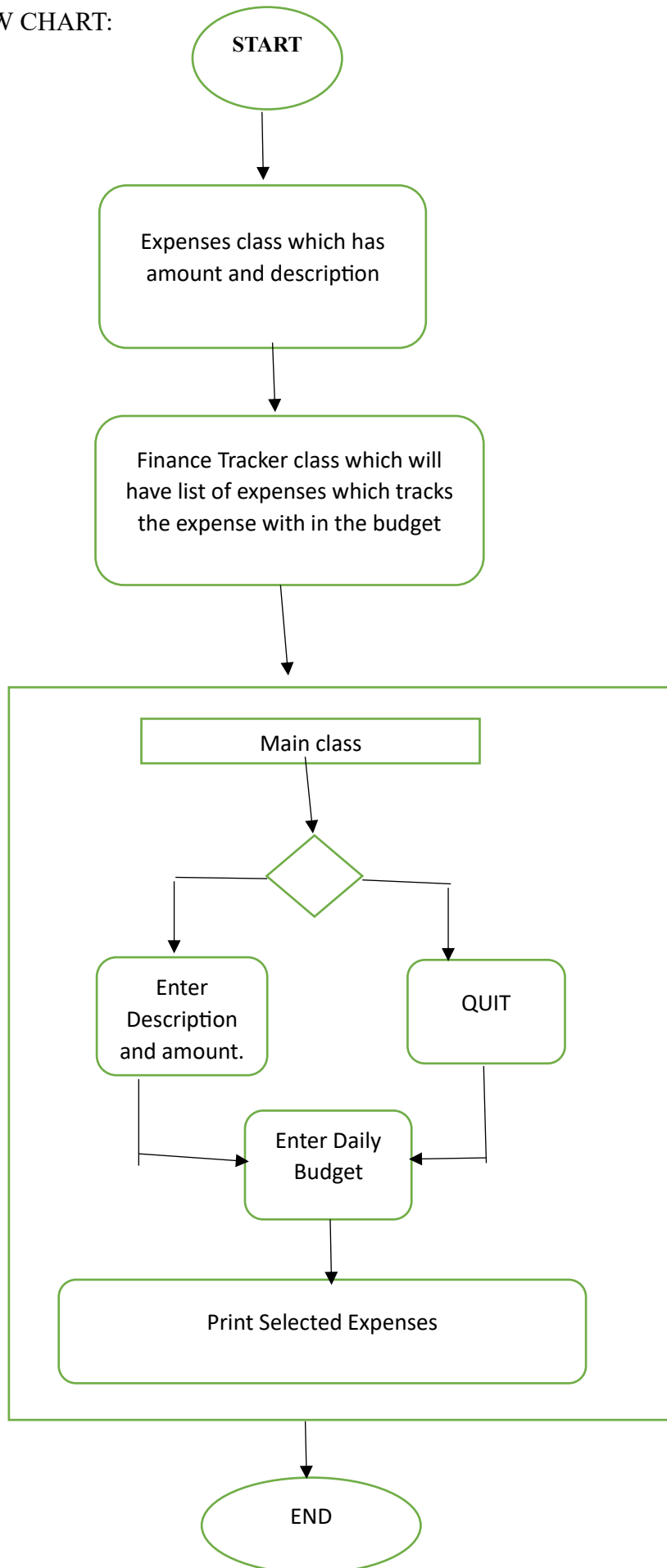
CODE:(JAVA)

```java
import java.util.ArrayList;
import java.util.Comparator;
import java.util.list;
import java.util.Scanner;
class exp
{
   private String dp;
   private double a;
}
public exp(String dp,double a)
{
   this.description=dp;
   this.amount=a;
}
public string getdp()
{
   return dp;
}
public double geta()
{
   return a;
}
class ft
{
   private List<exp>expenses;
   public ft()
   {
      expenses=new ArrayList<>();
   }
   public void addexp(exp expense)
   {
      expenses.add(exp);
   }
   public List<exp>texp(double budget)
   {
      List<exp>sexp=new ArrayList<>();
      expenses.sort(Comparator.compDouble(exp::geta));
      double rb=budget;
      for(exp expense:expenses)
      {
         if(expense.geta()<=rb)
         {
            sexp.add(expense);
            rb-=expense.geta();
         }
```

```java
        }
        return sexp;
    }
}
class main
{
    public static void main(String[] args)
    {
        Scanner sc=new Scanner(System.in);
        ft x=new ft();
        while(true)
        {
            System.out.println("enter the expenses (or) quit");
            sp=sc.nextLine();
            if(dp.equaIsIgnoreCase("quit"))
            {
                break;
            }
            System.out.println("Enter amount");
            double a=sc.nextDouble();
            sc.nextLine();
            exp expense=new exp(dp,a);
            x.addexp(expense);
        }
        System.out.println("Enter ur budget");
        double budgett=sc.nextDouble();
        List<exp>sexp=x.texp(budget);
        System.out.println("Select Exp with in the given amount");
        for(exp expense:sexp)
        {
            System.out.println("Description:"+expense.getdp()+",a:"+expense.geta());
        }
    }
}
```

OUTPUT:

```
java -cp /tmp/aCTVApIxA8 Main
Enter expense description (or 'quit' to exit):
grocories
Enter expense amount:
5000
Enter expense description (or 'quit' to exit):
rent
Enter expense amount:
4000
Enter expense description (or 'quit' to exit):fruits
Enter expense amount:
560
Enter expense description (or 'quit' to exit):
bike emi
Enter expense amount:
3,900
Enter expense description (or 'quit' to exit):
```

```
Enter expense description (or 'quit' to exit):
loan intrest
Enter expense amount:
1900
Enter expense description (or 'quit' to exit):
clothing
Enter expense amount:
2200
Enter expense description (or 'quit' to exit):
medicines
Enter expense amount:
3000
Enter expense description (or 'quit' to exit):
others
Enter expense amount:
3000
```

```
Enter expense amount:
3000
Enter expense description (or 'quit' to exit):
quit
Enter your budget:
20000
```

```
Enter expense description (or 'quit' to exit):
quit
Enter your budget:
20000
Selected expenses within budget:
Description: fruits, Amount: 560.0
Description: loan intrest, Amount: 1900.0
Description: clothing, Amount: 2200.0
Description: medicines, Amount: 3000.0
Description: others, Amount: 3000.0
Description: bike emi, Amount: 3900.0
Description: rent, Amount: 4000.0
```

Here, when we run the code it will ask for the expense description after entering amount description it will ask for the amount needed for that expense and it will continuously ask about expense description and the amount required. If the expenses are ended by enter a message called "quit" it stops asking about expenses and description. And it will ask for the budget we are going to spent on that expenses. After entering the budget it will select the expense within the budget can be done. Above, it shows about Mr. Suresh expenses and what is his budget by that it selected some expenses which can be done within the budget.

CONCULATION:

The purpose of this project is to construct a web-based application that offers users with financial ratios of public listed corporations. In addition to offering users financial ratios, the Financial Tracker Application, may determine which publicly traded firms are performing in relation to the chosen financial ratios. There should be a strong separation between her business and personal accounts The only financial data on publicly traded companies that consumers can access through the current financial data source is financial data; ratios and their importance are not provided.

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