Final Report
(PROJECT POCKETROCKET)

Course Code: CS110 **Course Title:** Computer Programming

Semester: B. Tech 2^{nd} Sem **Section:** S1

Academic Year: 2019-20 **Course Instructor:** B. R. Chandavarkar

Team Members:

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1 Abstract

For anyone interested in earning a little bit of extra cash or investing their saving in the share market one knows there's a buck load of information on the internet to know how these transactions take place and a ton of brokers but researching information about each and every company's stock individually to see which is the best for one can be extremely tiring and laborious and even so many people still might end up invest in the wrong company or the one that does not suit their best interests. So here at PocketRocket we have created an app that has documented the Average Profit per month, Price and Growth rate of each share of the Top Companies and segregated them Sector wise to help you select the best investment option. Whether you need a stock for long term for steady return or for the time it's price increases so as to sell it soon and make a profit or even research a company to know how much return it might give you. Doing this will give the added advantage to rule out sectors or companies that are risky to invest or the ones you don't find comfortable investing. This App also calculates your per month savings to give you an idea of how much you can earn by investing for long term or short term given the time period you find comfortable. All info is fact checked and reliable.

key features

1. Calculating savings per month(Taking into account various loans and state wise taxes) or inputting already saved amount.

2. Giving option to sort companies price wise, stock growth rate wise, or returns per month wise.

3. predict profits.

4. search a company sector wise

5. get to know return on a particular company

6. check updates on company info

7. after getting to know one detail one can return to back to the top and start again

8. Not applicable for ages less than 18

2 Introduction

PocketRocket is an user friendly application that allows easy access to everyday job holders(above the age of 18) to our well researched statistics about the buying and selling of shares of a company. As Stock market is on the rise earning big bucks for investors investing and innovative start-ups getting help in them get funding, one doesn't know where and what to invest in. PocketRocket provides easy access to such users attracting quality information from well researched statistics on where one must invest to rake in max profits according to one's priorities.

It is completely a C-programming based application that is mainly dependent on structures,switch cases, pointers and file handlers. The application utilizes bubble sorting algorithms,and files to store data and simple functions and structures to arrange data in the order and manner in which the user wishes to see. The project allows users to register by name and age(as criteria is be 18+) to search about companies and predict max profits. One can either chose to input already saved savings or have the program calculate one's monthly savings to give to see best combination of companies(3 as that is the limit for our company at one time) to invest in.

If one wishes to see the updates on a particular company it can search it sector wise and see it's statistics and also search the company by sorting the array of companies by price, average price growth rate of share or monthly profits to the share (the investor is entitled to per month)

3 Structure of programme(Flowchart or Algorithm)

The program uses 3 structures for storing data. And 3 functions each having sorting algorithms to sort the data array of comapanies:

1. "loans" - Structure for storing details of loans like amount, interest, time period, and emi of the loan
2. "arr" - Structure for storing details like name and age of the user
3. "item_info" - Structure for storing Company details like Name, type, price, average growth rate, and profit per month of a particular stock of a company. Company[30] and Company1[30] are assigned to the structure. Company[30] to be sorted and Company1[30] to specifically used to search a company sector wise.
4. "agrSort" - Function for sorting Company[30] array by average growth rate of price of stock
5. "appsSort" - Function for sorting Company[30] array by return per month of stock.
6. "priceSort" - Function for sorting Company[30] array by price of stock

4 Basic (Broad) Structure of programme

The program has an initial switch case giving the following broad options to the user to go about the app:

1. "To input amount saved n see best options for your investment." - The first option offers the user to input the amount saved by the user and take preferences from the user if he/she wishes to see earn profits from the company's share or wait the stock price grows so that they can sell the stock. and accordingly gives the advises after sorting through the data.

2. "Calculate savings per month to see best options for investment using that number" - The second option offers the user to show how much he can make monthly by calculating his savings for him/her and showing how that can yield a profit.

3. "Press to research a company" - It gives a sector wise approach to search a company and see it's performance.

4. "Press to look at companies sorted at your convenient parameter" - it shows the entire list of companies sorted on a particular parameter wished by a user for the user to have broader outlook on the statistics.

Figure 1: Flow Overview and Index

CS110 Course Mini Project:

Team No.: Team 35

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Program Sypnosis

PocketRocket is a user friendly Finance technology app that provides its user on information of updates on share prices of different companies and it's other details like Average expected growth rate of price to know if it can sold soon on maturity, or as one is buying a share in a company that person is entitled to its that many shares of profits so its profit that the company earns and the price of each stock/share. Investing in stock market can be extremely beneficient to any person as it a source of extra income.

Program Structure

We have a while loop that runs the whole program in a loop once one option is finished and we provide the below mentioned broad options via switch case. Here is a review of each case/option of the switch case and the key feature it satisfy.
Structure:

0.Basic Layout

1. after getting to know one detail one can return to back to the top and start again
2. Not applicable for ages less than 18

1.If an individual has Money saved up he/she can input such money and see it's returns:

1.Giving option to sort companies stock growth rate wise, or returns per month wise.
2. predict profits.

2.If an individual wishes to see how much his/her monthly savings can grow by investing

1. Calculating savings per month(Taking into account various loans and state wise taxes) or inputting already saved amount.
2. Giving option to sort companies price wise, stock growth rate wise, or returns per month wise.
3. predict profits.

3.Search a company by sector to see its updates (like change in price, growth rate, profit per month)

1.Search a company sector wise
2.Get to know returns on a particular company
3.Check updates on company info

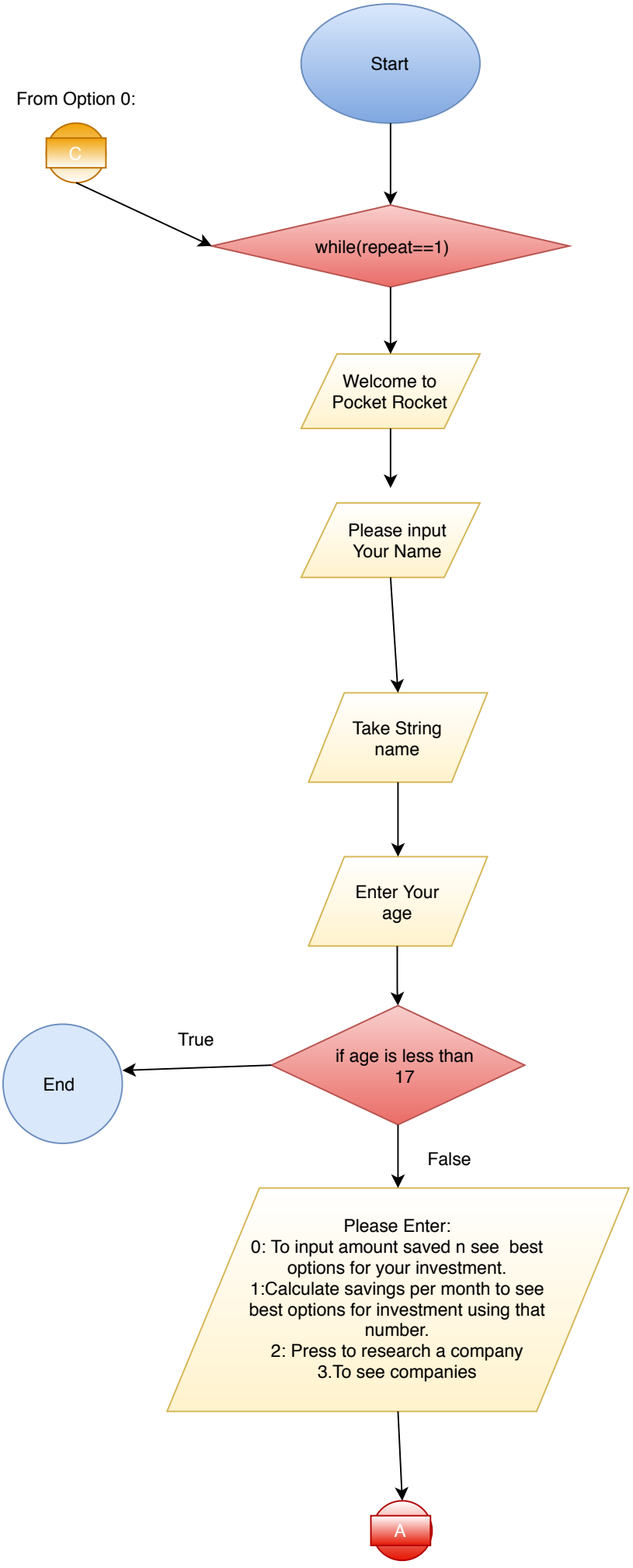
4.Search a company by sorting it on the basis of different parameters

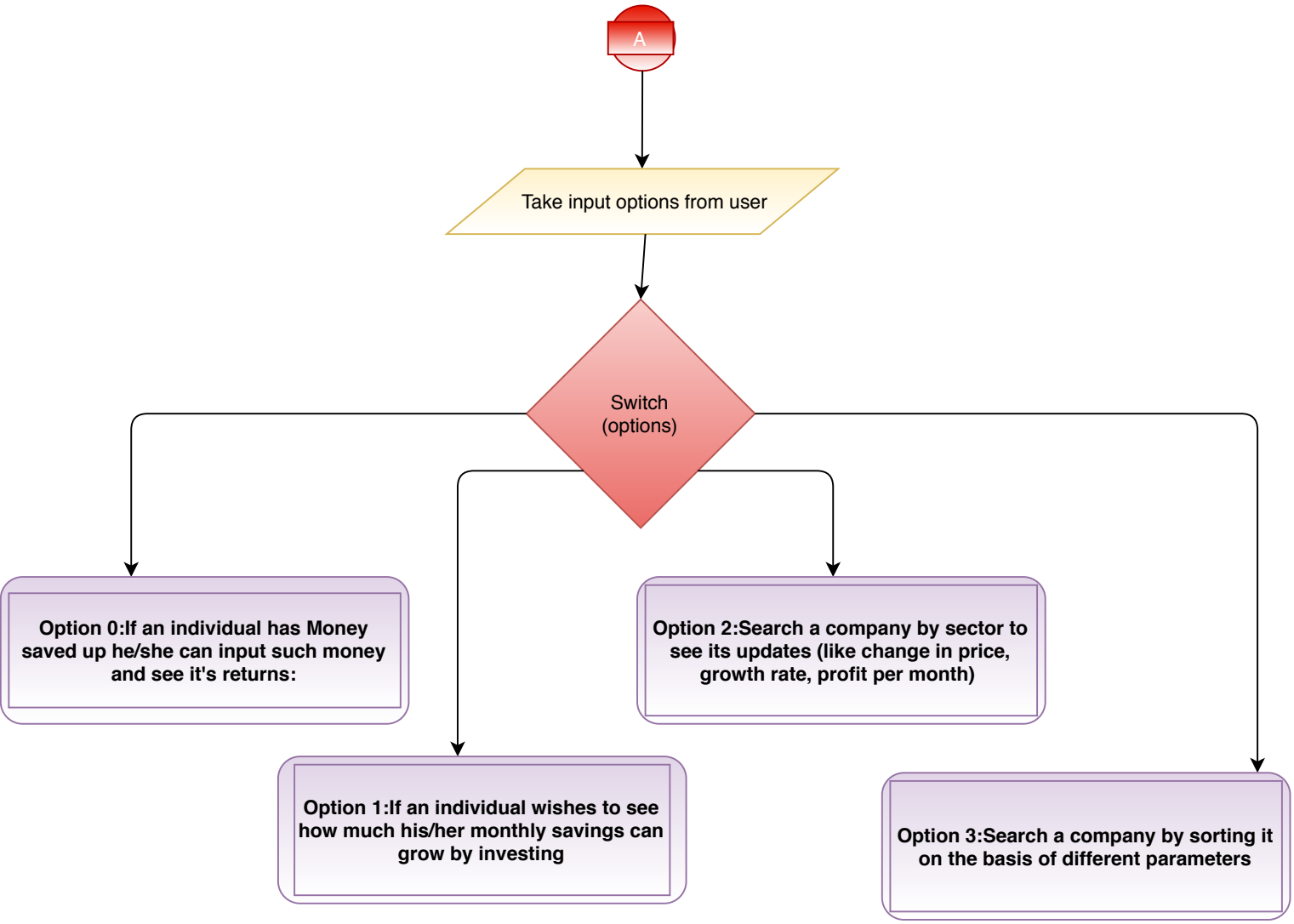
1.Giving option to sort companies price wise, stock growth rate wise, or returns per month wise.

0.Basic Layout

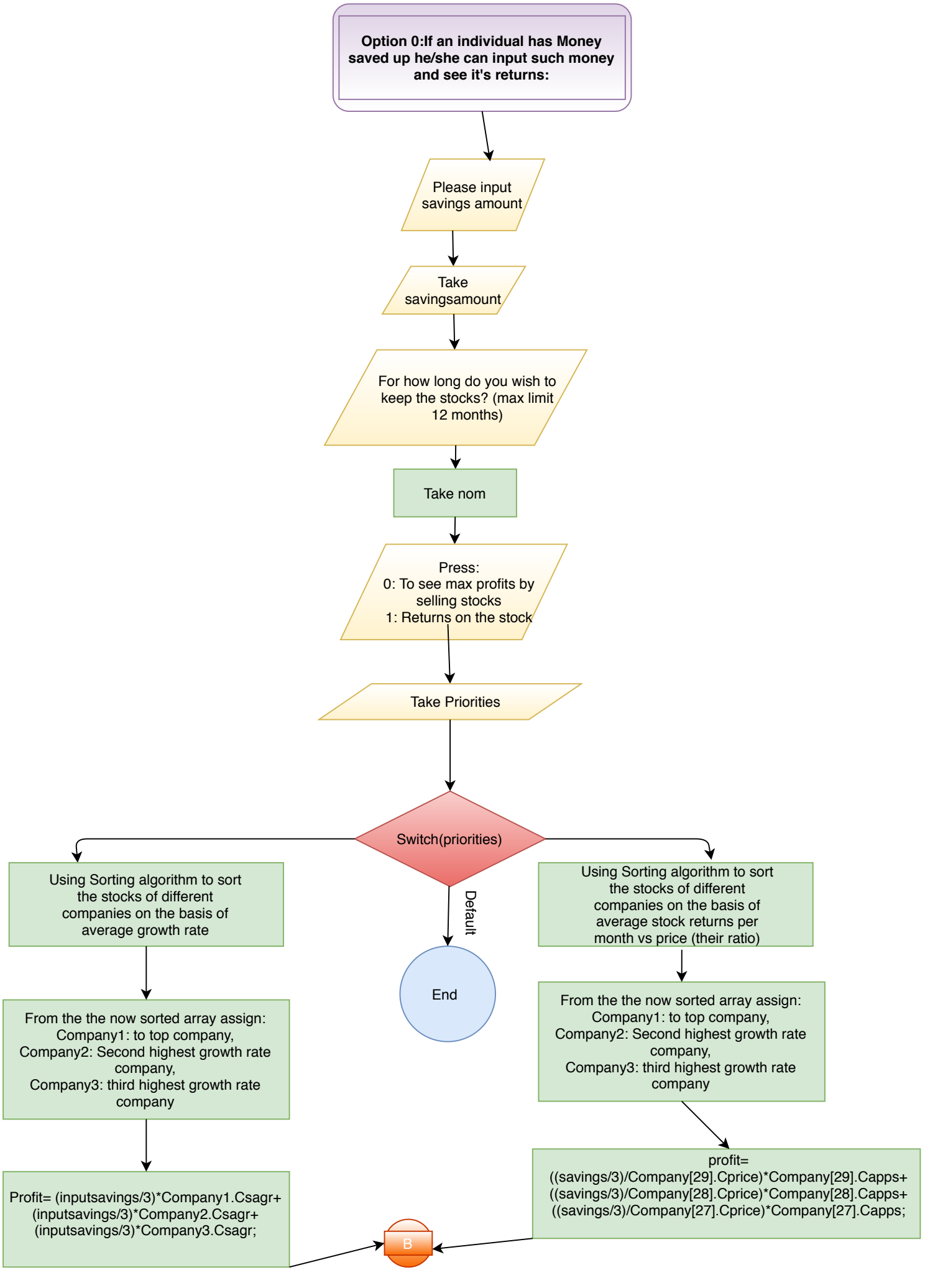
Struct loans{
float amount;
float interest;
float time;
float emi;
}

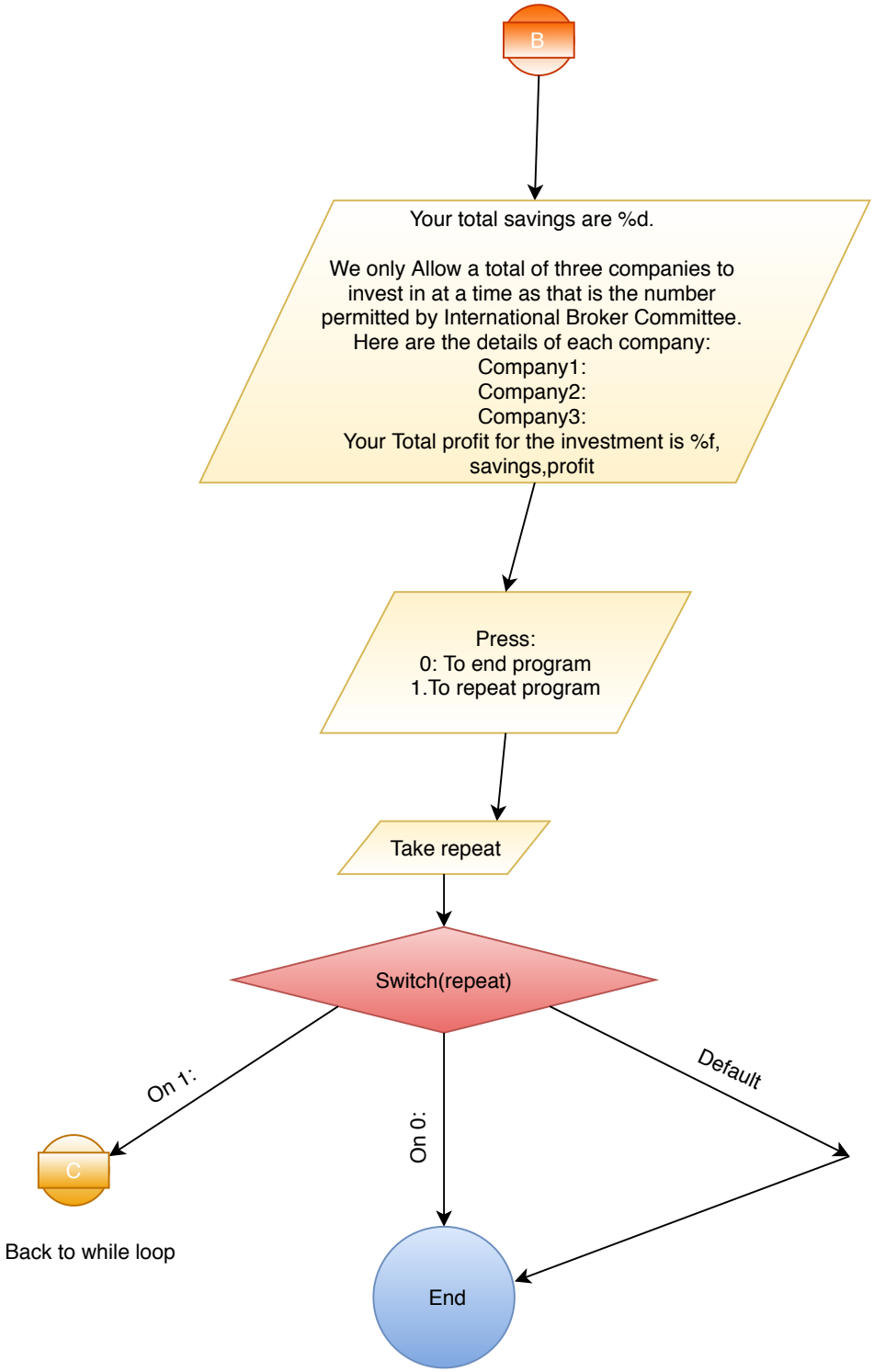
struct companies{
char Cname[100];
float Cagr; float
Capps; float
Cprice; char
Ctype[100];};



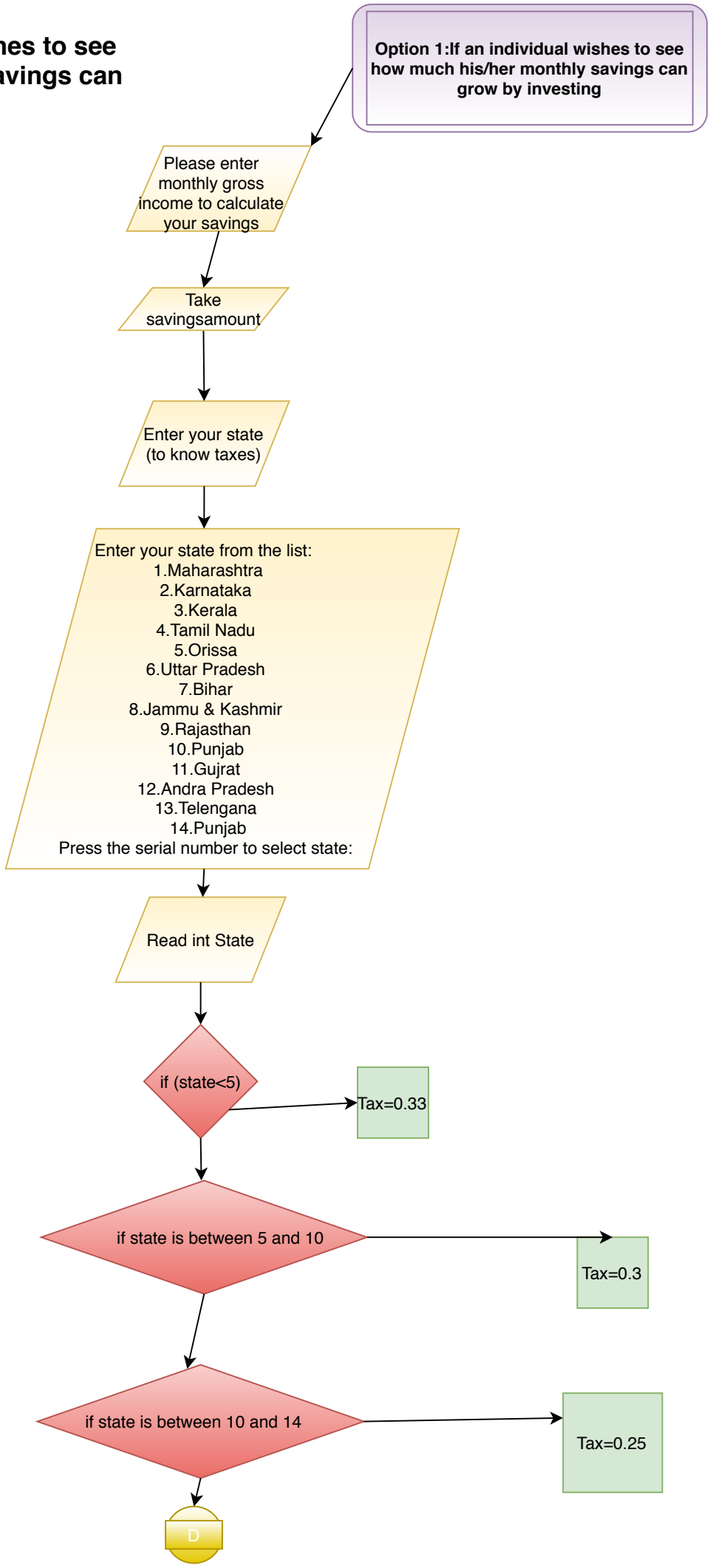

A
Take input options from user
Switch
(options)
Option 0:If an individual has Money saved up he/she can input such money and see it's returns:
Option 1:If an individual wishes to see how much his/her monthly savings can grow by investing
Option 2:Search a company by sector to see its updates (like change in price, growth rate, profit per month)
Option 3:Search a company by sorting it on the basis of different parameters

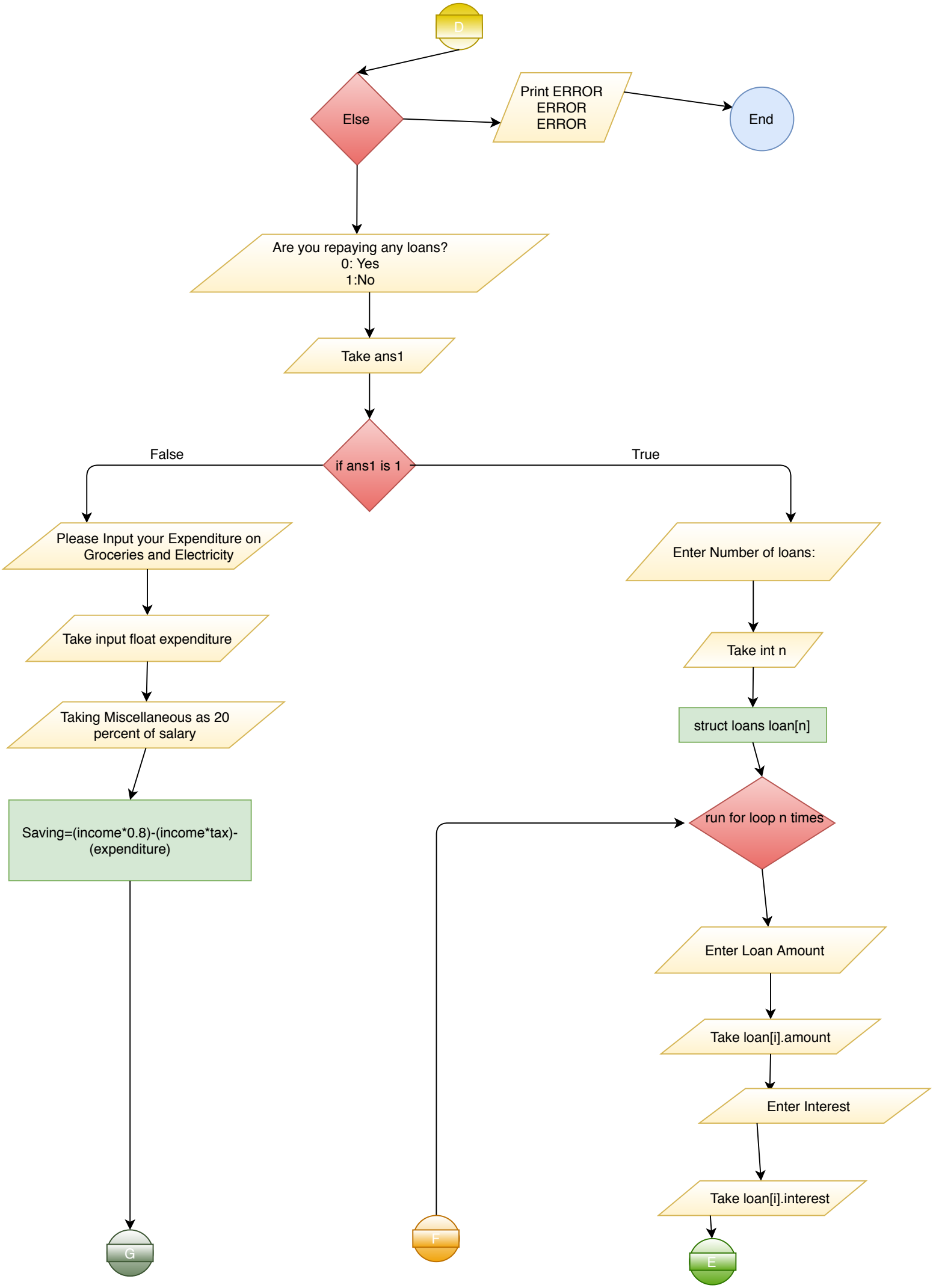
Option 0:If an individual has Money saved up he/she can input such money and see it's returns:

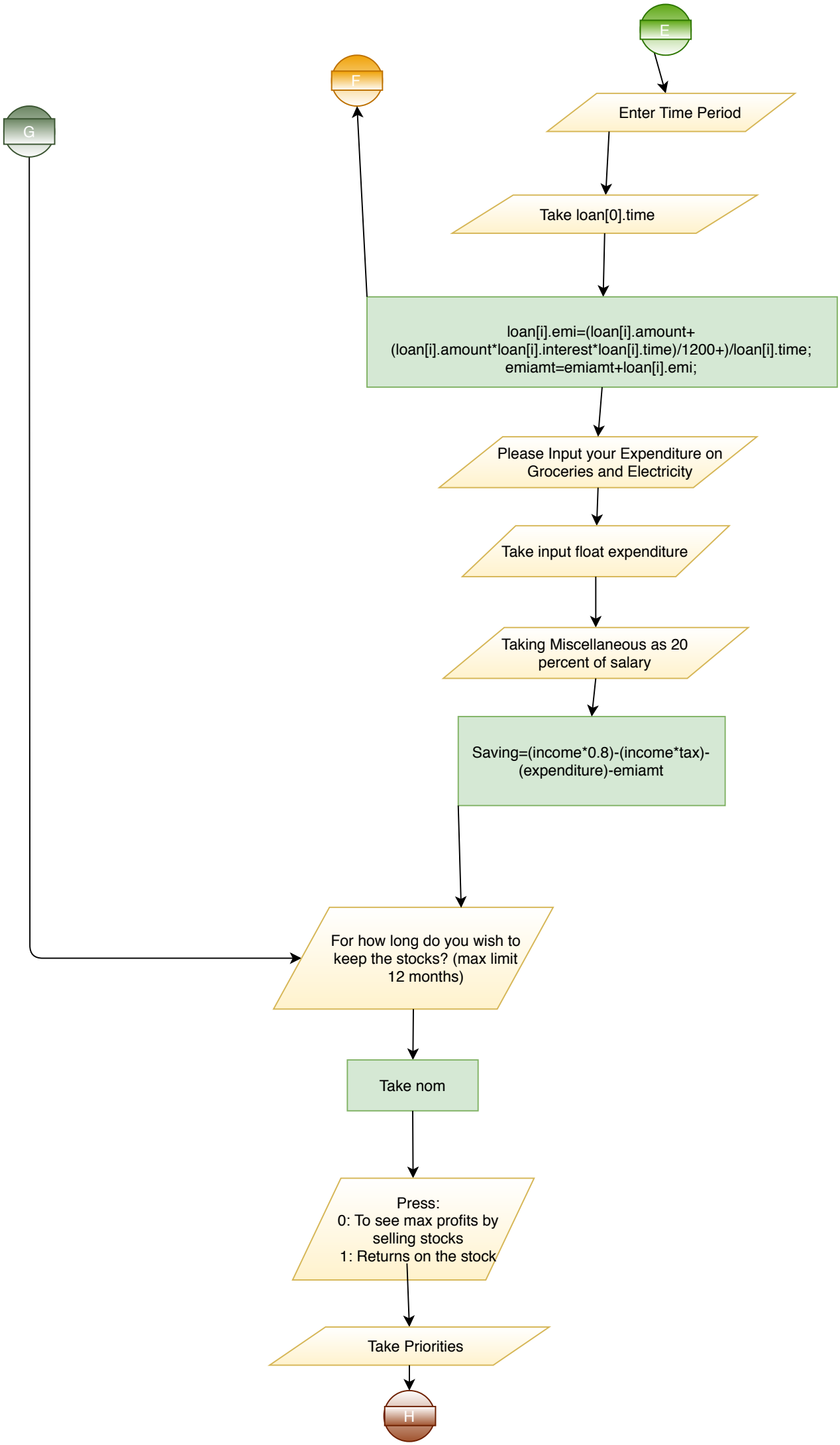


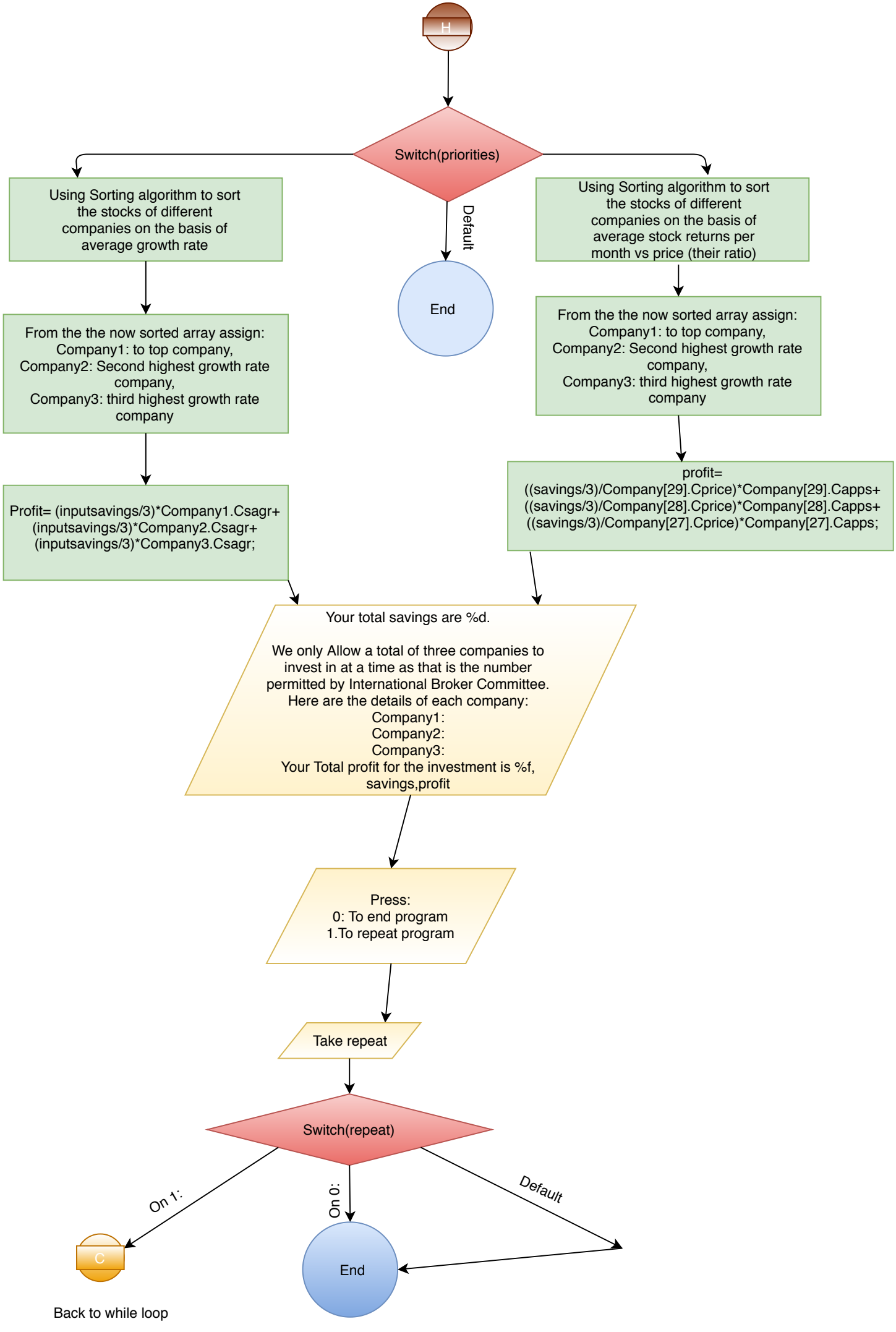

B
Your total savings are %d.
We only Allow a total of three companies to invest in at a time as that is the number permitted by International Broker Committee.
Here are the details of each company:
Company1:
Company2:
Company3:
Your Total profit for the investment is %f, savings,profit
Press:
0: To end program
1.To repeat program
Take repeat
Switch(repeat)
On 1:
On 0:
Default
C
Back to while loop
End

Option 1:If an individual wishes to see how much his/her monthly savings can grow by investing

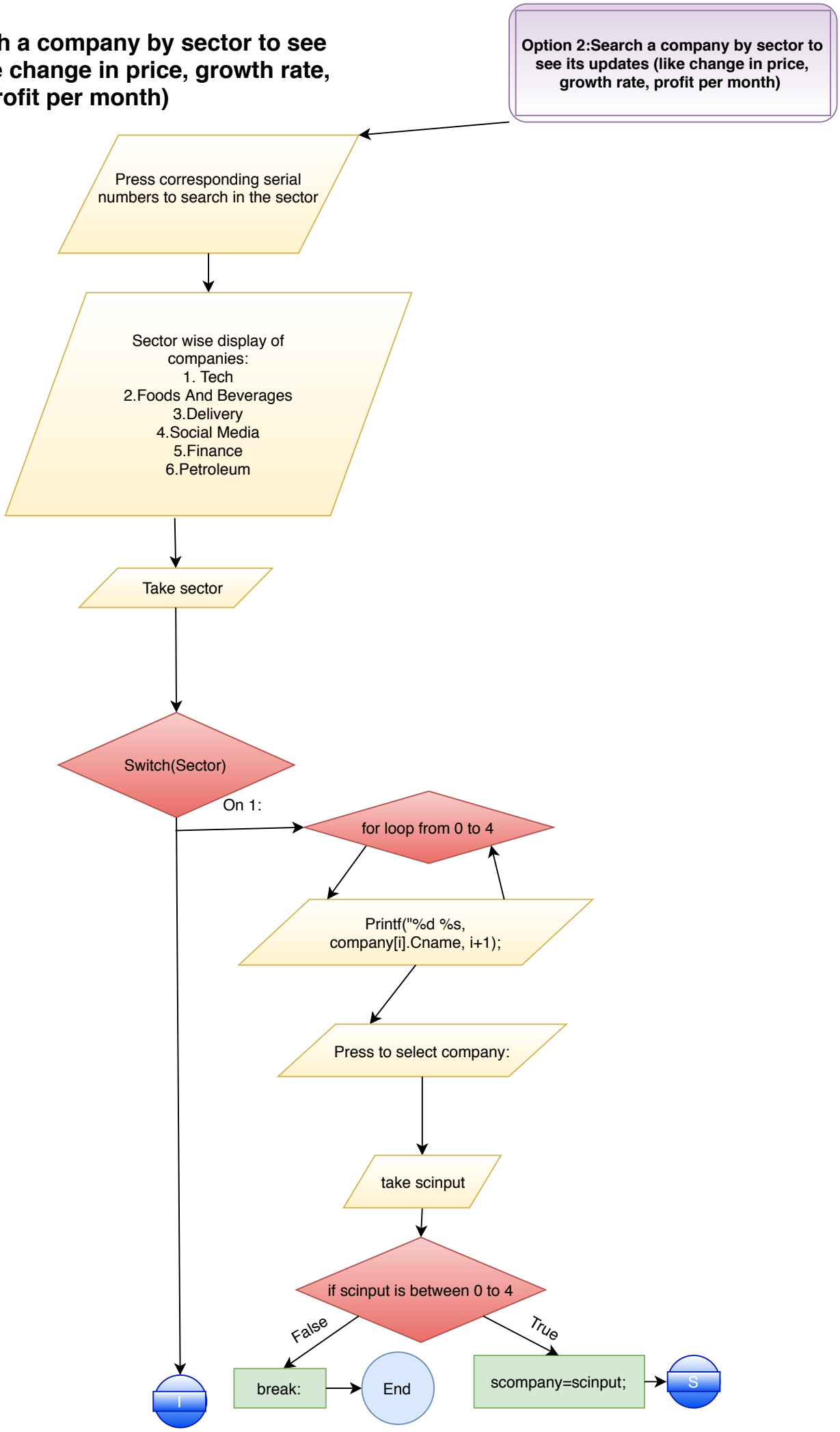


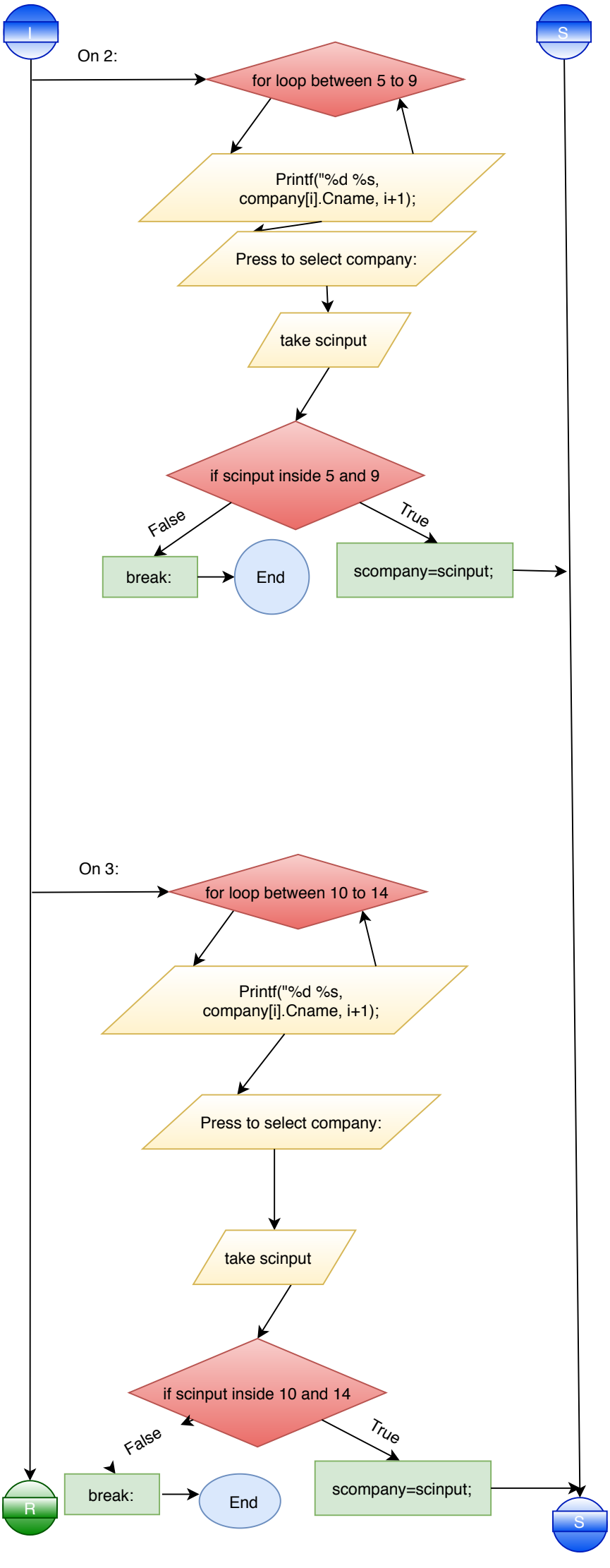

D
Else
Print ERROR
ERROR
ERROR
End
Are you repaying any loans?
0: Yes
1:No
Take ans1
if ans1 is 1
False
True
Please Input your Expenditure on Groceries and Electricity
Take input float expenditure
Taking Miscellaneous as 20 percent of salary
Saving=(income*0.8)-(income*tax)-(expenditure)
G
Enter Number of loans:
Take int n
struct loans loan[n]
run for loop n times
Enter Loan Amount
Take loan[i].amount
Enter Interest
Take loan[i].interest
E
F

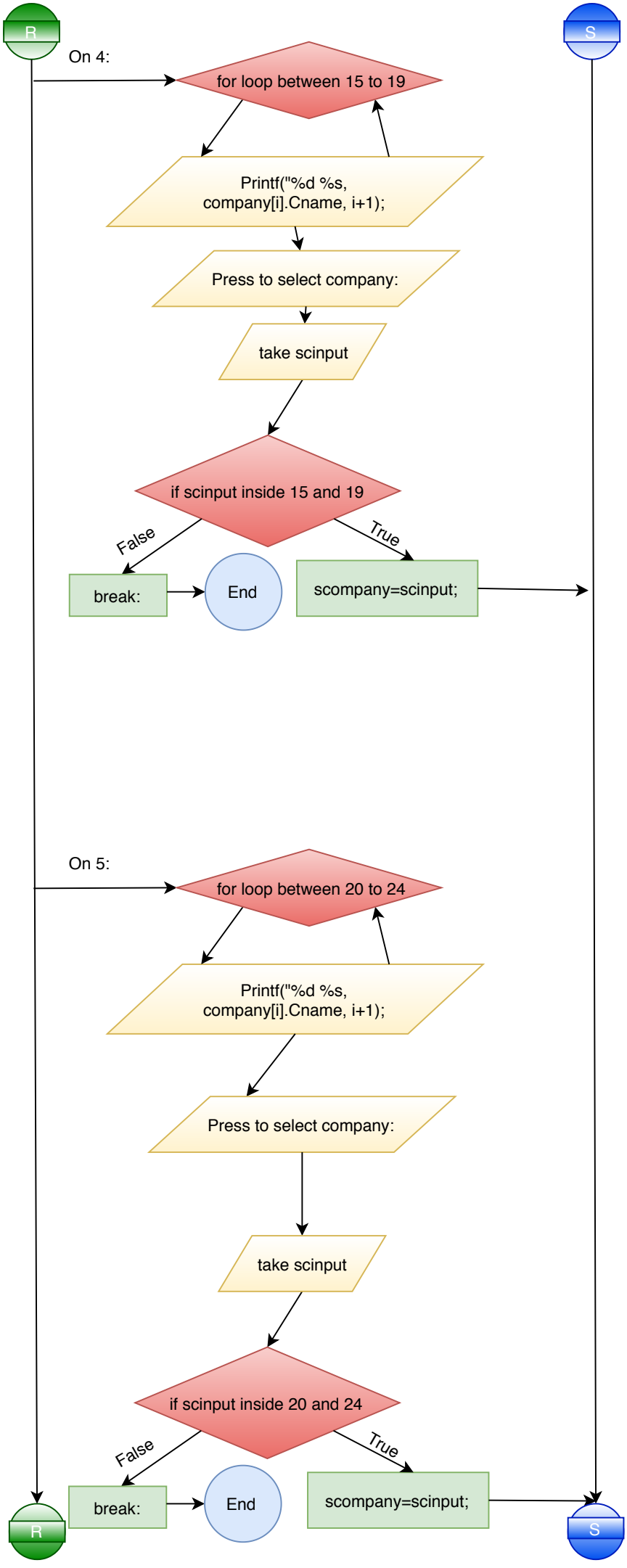

E
F
G
Enter Time Period
Take loan[0].time
loan[i].emi=(loan[i].amount+
(loan[i].amount*loan[i].interest*loan[i].time)/1200+)/loan[i].time;
emiamt=emiamt+loan[i].emi;
Please Input your Expenditure on
Groceries and Electricity
Take input float expenditure
Taking Miscellaneous as 20
percent of salary
Saving=(income*0.8)-(income*tax)-
(expenditure)-emiamt
For how long do you wish to
keep the stocks? (max limit
12 months)
Take nom
Press:
0: To see max profits by
selling stocks
1: Returns on the stock
Take Priorities
H

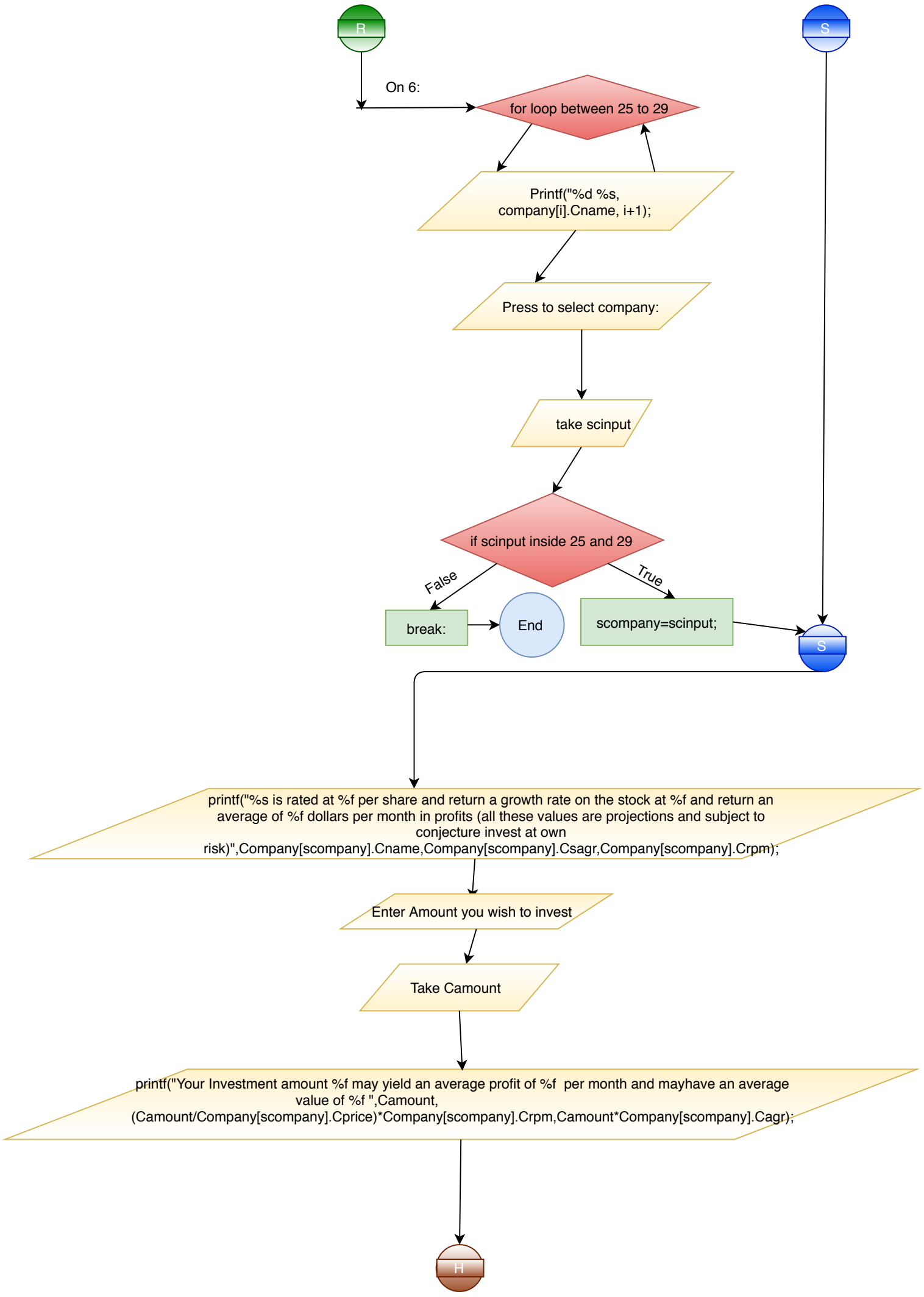

H
Switch(priorities)
Default
End
Using Sorting algorithm to sort the stocks of different companies on the basis of average growth rate
From the the now sorted array assign: Company1: to top company, Company2: Second highest growth rate company, Company3: third highest growth rate company
Profit= (inputsavings/3)*Company1.Csagr+ (inputsavings/3)*Company2.Csagr+ (inputsavings/3)*Company3.Csagr;
Using Sorting algorithm to sort the stocks of different companies on the basis of average stock returns per month vs price (their ratio)
From the the now sorted array assign: Company1: to top company, Company2: Second highest growth rate company, Company3: third highest growth rate company
profit= ((savings/3)/Company[29].Cprice)*Company[29].Capps+ ((savings/3)/Company[28].Cprice)*Company[28].Capps+ ((savings/3)/Company[27].Cprice)*Company[27].Capps;
Your total savings are %d.
We only Allow a total of three companies to invest in at a time as that is the number permitted by International Broker Committee.
Here are the details of each company:
Company1:
Company2:
Company3:
Your Total profit for the investment is %f, savings,profit
Press:
0: To end program
1.To repeat program
Take repeat
Switch(repeat)
On 1:
On 0:
Default
C
End
Back to while loop

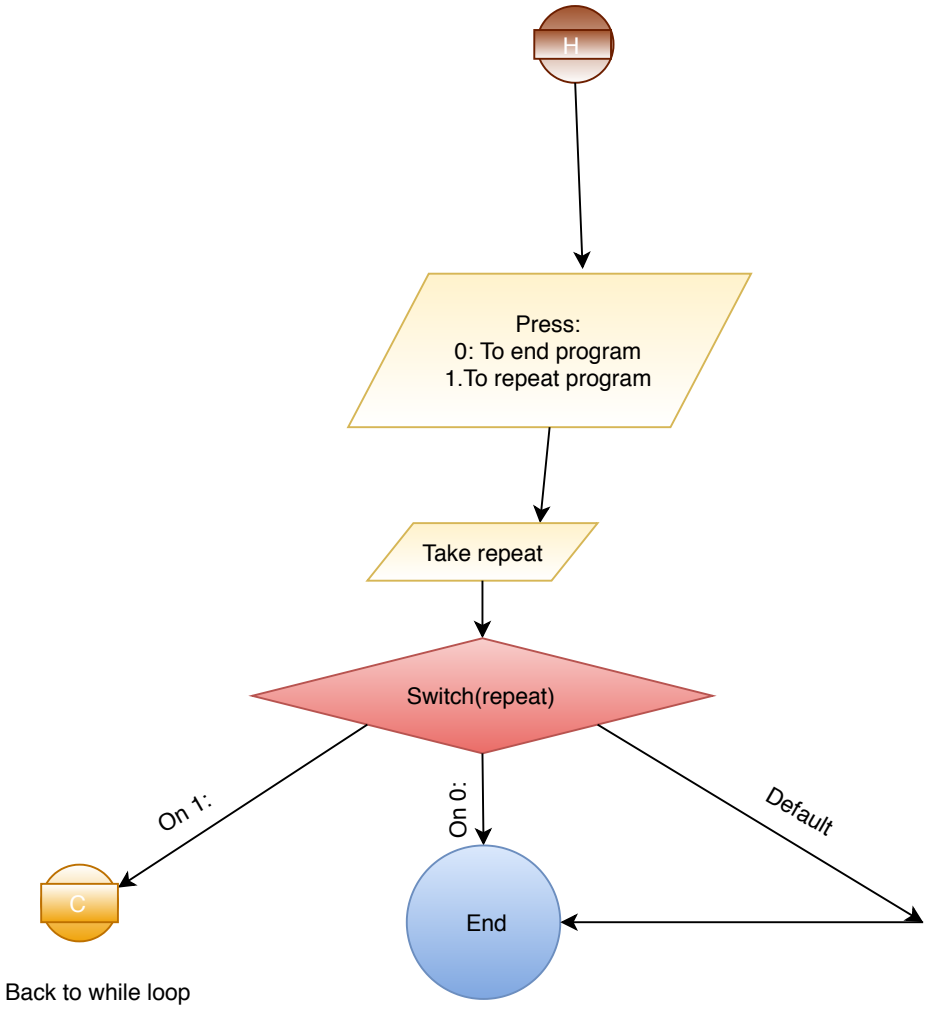
Option 2:Search a company by sector to see its updates (like change in price, growth rate, profit per month)



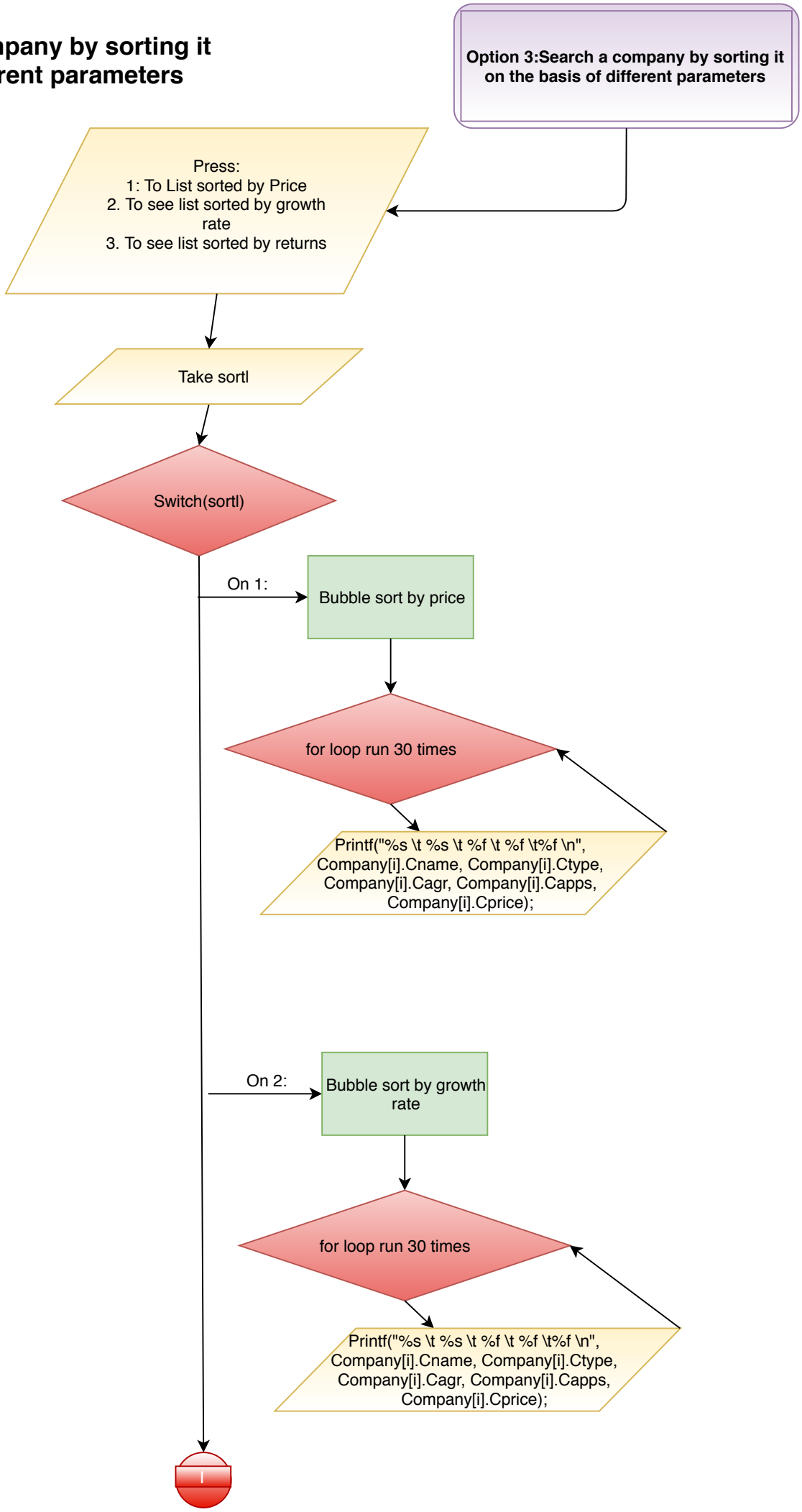

I
S
On 2:
for loop between 5 to 9
Printf("%d %s,
company[i].Cname, i+1);
Press to select company:
take scinput
if scinput inside 5 and 9
False
True
break:
End
scompany=scinput;
On 3:
for loop between 10 to 14
Printf("%d %s,
company[i].Cname, i+1);
Press to select company:
take scinput
if scinput inside 10 and 14
False
True
R
break:
End
scompany=scinput;
S

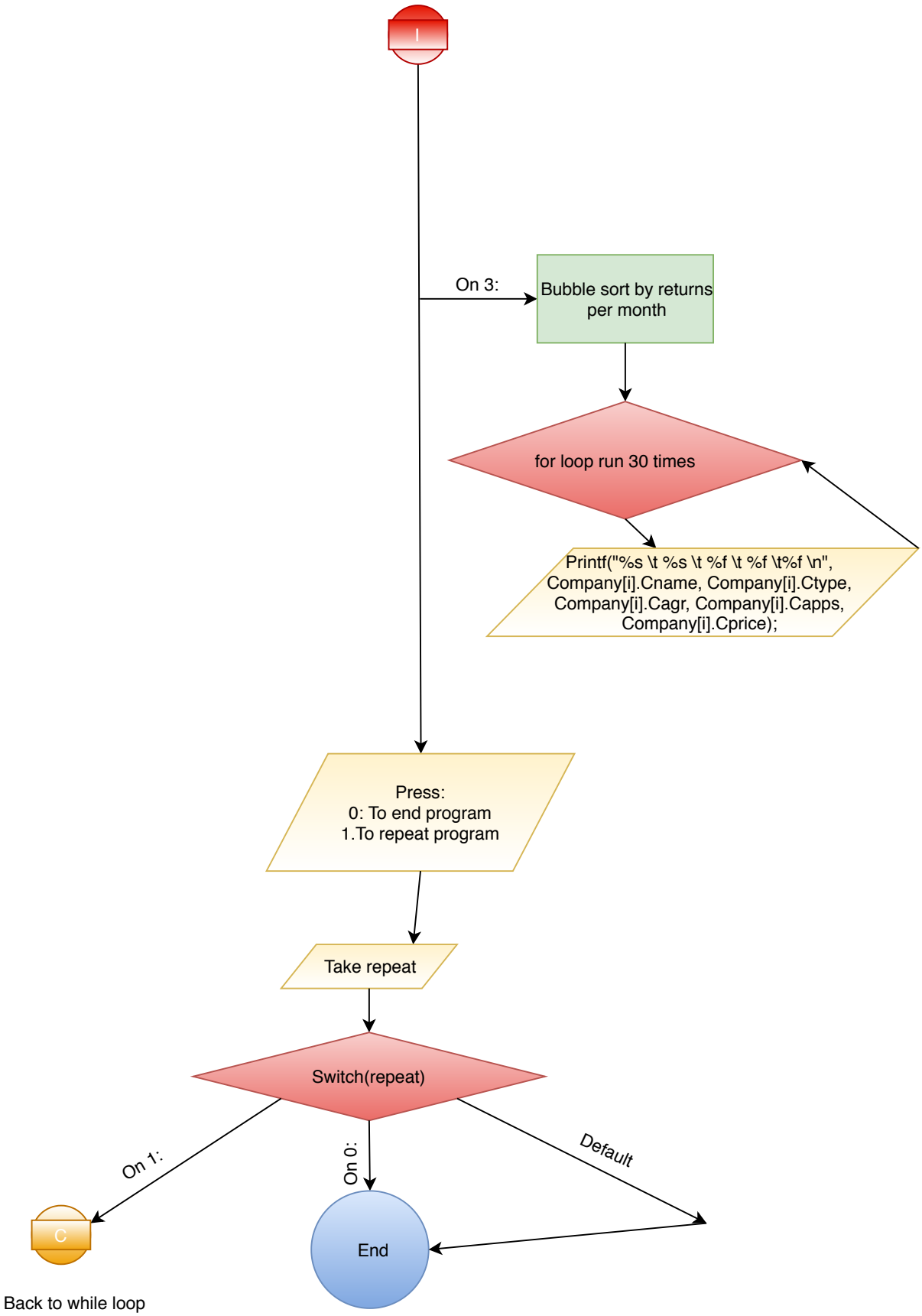

R
S
On 4:
for loop between 15 to 19
Printf("%d %s,
company[i].Cname, i+1);
Press to select company:
take scinput
if scinput inside 15 and 19
False
True
break:
End
scompany=scinput;
On 5:
for loop between 20 to 24
Printf("%d %s,
company[i].Cname, i+1);
Press to select company:
take scinput
if scinput inside 20 and 24
False
True
break:
End
scompany=scinput;
R
S


R
S
On 6:
for loop between 25 to 29
Printf("%d %s,
company[i].Cname, i+1);
Press to select company:
take scinput
if scinput inside 25 and 29
False
True
break:
End
scompany=scinput;
S
printf("%s is rated at %f per share and return a growth rate on the stock at %f and return an average of %f dollars per month in profits (all these values are projections and subject to conjecture invest at own risk)",Company[scompany].Cname,Company[scompany].Csagr,Company[scompany].Crpm);
Enter Amount you wish to invest
Take Camount
printf("Your Investment amount %f may yield an average profit of %f per month and mayhave an average value of %f ",Camount,
(Camount/Company[scompany].Cprice)*Company[scompany].Crpm,Camount*Company[scompany].Cagr);
H


H
Press:
0: To end program
1.To repeat program
Take repeat
Switch(repeat)
On 1:
On 0:
Default
C
End
Back to while loop

Option 3:Search a company by sorting it on the basis of different parameters




I
On 3:
Bubble sort by returns per month
for loop run 30 times
Printf("%s \t %s \t %f \t %f \t%f \n", Company[i].Cname, Company[i].Ctype, Company[i].Cagr, Company[i].Capps, Company[i].Cprice);
Press:
0: To end program
1.To repeat program
Take repeat
Switch(repeat)
On 1:
On 0:
Default
C
End
Back to while loop

5 Source Code

This section of the report presents the source code for project - PocketRocket

pocketrocket.c

```
/*
Project - PocketRocket
CS110 Mini Project
Team: 35
Team Members:
    1. Sumit Sagar, 191ME285, 7759975071, sumit.191me285@nitk.edu.in
    2. Viren Varma, 191ME293, 9969894552,8105280903 viren.191me293@nitk.edu.in
*/

    #include <stdio.h>
    #include<stdlib.h>

    /*CREATING STRUCTURE LOANS TO ADD LOANS FOR CALCULATING THE SAVINGS*/
    struct loans{
         float amount;
         float interest;
         float time;
         float emi;
    };

    /*CREATING A STRUCTURE TO TAKE NAME AND AGE AND STORE IT IN THE FILE*/
    struct arr {
        char name[50];
        int age;
    };

    /*CREATING STRUCTURE item_info TO TABULATE THE DATA OF COMPANIES LIKE THEIR NAME,SECTOR,
        GROWTH RATE PRICE, MONTHLY RETURNS AND PRICE
    * Ctype= Company Sector
    * Cname= Company name
    * Cagr= Company average growthrate per month
    * Capps= Company average profit per month
    * Cprice= Price of each stock of the company
    */
    struct item_info
    {
        char Ctype[100];
        char Cname[100];
        float Cagr;
        float Capps;
        float Cprice;
    }Company[30] =
    {
        {"Tech              ","Apple           ",1.94,8,320},
```

```
    {"Tech                ","Microsoft       ",1.24,6,185},
    {"Tech                ","Samsung         ",1.64,7,127},
    {"Tech                ","Lenovo          ",-1.94,1.3,30},
    {"Tech                ","Intel           ",0.3,2.1,58},
    {"Foods & Beverages","Coca-Cola       ",1.94,8,46},
    {"Foods & Beverages","Lays            ",1.24,6,432},
    {"Foods & Beverages","Pepsico         ",-1.64,14,435},
    {"Foods & Beverages","Parle           ",-1.94,1.3,41},
    {"Foods & Beverages","Nestle          ",0.3,2.1,105},
    {"Delivery          ","Amazon          ",1.94,68,2400},
    {"Delivery          ","Alibaba         ",-1.24,6,216},
    {"Delivery          ","Zomato          ",-1.64,14,435},
    {"Delivery          ","Swiggy          ",-1.94,5,141},
    {"Delivery          ","Flipkart        ",-0.3,6,105},
    {"Social Media      ","Facebook        ",1.94,8,320},
    {"Social Media      ","Instagram       ",1.24,6,185},
    {"Social Media      ","Snapchat        ",1.64,7,127},
    {"Social Media      ","Whatsapp        ",-1.94,1.3,30},
    {"Social Media      ","Share it        ",0.3,2.1,58},
    {"Finance           ","JPMorgan Chase",1.94,8,46},
    {"Finance           ","HSBC            ",1.24,6,432},
    {"Finance           ","CitiBank        ",-1.64,14,435},
    {"Finance           ","ICICI           ",-1.94,1.3,41},
    {"Finance           ","MasterCard      ",0.3,2.1,105},
    {"Petroleum         ","ExxonMobil      ",1.94,68,2400},
    {"Petroleum         ","HP              ",-1.24,6,216},
    {"Petroleum         ","Chevron         ",-1.64,14,435},
    {"Petroleum         ","CNPC            ",-1.94,5,141},
    {"Petroleum         ","Total           ",-0.3,6,105}
};
        /*FUCTION TO SORT THE STRUCTURE ARRAY BY Cagr (average growth rate of stock)*/
void agrSort()
    {
        int n = 30;
        for (int i = 0; i < n - 1; i++)
            for (int j = 0; j < n - i - 1; j++)
                if (Company[j].Cagr > Company[j + 1].Cagr)
                {
                    // swap temp and arr[i]
                    struct item_info temp = Company[j];
                    Company[j] = Company[j + 1];
                    Company[j + 1] = temp;
                }
    }
 /*FUCTION TO SORT THE STRUCTURE ARRAY BY Capps (average returns per month of stock)*/
void appsSort()
{
         int n1 = 30;
                for (int i = 0; i < n1 - 1; i++)
                    for (int j = 0; j < n1 - i - 1; j++)
                        if (((100)/Company[j].Cprice)*Company[j].Capps > ((100)/Company[j
```

```
                        +1].Cprice)*Company[j+1].Capps)
                    {
                        // swap temp and arr[i]
                        struct item_info temp = Company[j];
                        Company[j] = Company[j + 1];
                        Company[j + 1] = temp;
                    }
}
/*FUCTION TO SORT THE STRUCTURE ARRAY BY Cprice (price of stock)*/
void priceSort()
{
    int n = 30;
        for (int i = 0; i < n - 1; i++)
            for (int j = 0; j < n - i - 1; j++)
                if (Company[j].Cprice > Company[j + 1].Cprice)
                {
                    // swap temp and arr[i]
                    struct item_info temp = Company[j];
                    Company[j] = Company[j + 1];
                    Company[j + 1] = temp;
                }
}



int main()
{

    /*DECLARING ALL THE VARIABLES USED*/
    int repeat=1;
    int sortl;
    struct item_info Company1[30];
    for(int i=0; i<30; i++)
        Company1[i]=Company[i];
    int nom=0;
    char name[100];
    int age;
    int options=0;
    float savingsamount;
    int priorities;
    float profit;
    int state;
    float tax;
    int ans1;
    float expenditure;
    float savings;
    int n;
    float emiamt=0;
    int sector;
    int scinput;
    int scompany;
```

```
float Camount;
struct arr a[5],b[5];
FILE *fptr;
fptr=fopen("file.txt","wb");


    printf("\n\n\n\n\n\n\n\n\n\n\n");
    printf("\t\t\t\t\t\t\t\t\t\t\tWelcome to Pocket Rocket");
    printf("\n\t\t\t\t\t\t\t\t\t\t----------------------------------------------------\n\n
        \n");
    printf("\t\t\t\t\t\t\tFor anyone interested in earning a little bit of extra cash
        or investing their saving in the\n");
    printf("\t\t\t\t\t\t\tshare market one knows theres a buck load of information
        on the internet to know how these\n");
    printf("\t\t\t\t\t\t\ttransactions take place and a ton of brokers but researching
         information about each and every\n");
    printf("\t\t\t\t\t\t\tcompanys stock individually to see which is the best for
        one can be extremely tiring and\n");
    printf("\t\t\t\t\t\t\tlaborious and even so many people still might end up invest
        in the wrong company or the one\n");
    printf("\t\t\t\t\t\t\tthat does not suit their best interests. So here at
        PocketRocket we have created an app that\n");
    printf("\t\t\t\t\t\t\thas documented the Average Profit per month, Price and
        Growth rate of each share of the\n");
    printf("\t\t\t\t\t\t\tTop Companies and segregated them Sector wise to help you
        select the best investment option.\n");
    printf("\t\t\t\t\t\t\tWhether you need a stock for long term for steady return or
        for the time its price increases so\n");
    printf("\t\t\t\t\t\t\tas to sell it soon and make a profit or even research a
        company to know how much return it\n");
    printf("\t\t\t\t\t\t\tmight give you. Doing this will give the added advantage to
        rule out sectors or companies that\n");
    printf("\t\t\t\t\t\t\tare risky to invest or the ones you dont find comfortable
         investing. This App also calculates\n");
    printf("\t\t\t\t\t\t\tyour per month savings to give you an idea of how much you
        can earn by investing for long\n");
    printf("\t\t\t\t\t\t\tterm or short term given the time period you find
        comfortable. All info is fact checked and\n");
    printf("\t\t\t\t\t\t\treliable.\n\n\n");

    fflush(stdin);
    /*INPUT NAME*/
    printf("\n\t\t\t\t\t\t\t\t\t\t\tPLease Input Your Name:");
    gets(a[0].name);
    /*INPUT AGE*/
    printf("\t\t\t\t\t\t\t\t\t\t\tPlease Input age:");
    scanf("%d",&a[0].age);

    /*WHILE LOOP IS USED IF A USER WISHES TO GO THROUGH THE PROGRAM AGAIN AFTER
        REACHING THE END*/
    while(repeat==1){
```

```
/*WE USE FLIES TO STORE NAME AND AGE*/
fwrite(a,sizeof(a),1,fptr);
fclose(fptr);
fptr=fopen("file.txt","rb");
fread(b,sizeof(b),1,fptr);

/*PRINT FROM FILES
*WELCOME NAME
*/
printf("\n\n\t\t\t\t\t\t\t\t\t\t\tWelcome %s\n",b[0].name);
printf("\t\t\t\t\t\t\t\t\t\t\t----------------------------------------------------------\n\n\n
    ");

/*CHECK IF AGE IS ABOVE 17*/
if(a[0].age<=17){
        /*YOU ARE INELIGIBLE TO INVEST*/
    printf("\t\t\t\t\t\t\t\t\t\t\tYou are ineligible to invest");
    break;
}

else{


    /*GIVE OPTIONS TO SEE WHAT THE VIEWER WISHES TO DO
    *0.To input amount saved n see  best options for your investment.
    *1:Calculate savings per month to see best options for investment using that
        number.
    *2: Press to research a company
    *3: Press to look at companies sorted at your convenient parameter
    */


    printf("\t\t\t\t\t\t\t\t\t\t\tPlease Enter:\n\t\t\t\t\t\t\t\t\t\t\t0: To input
         amount saved n see  best options for your investment.\n\t\t\t\t\t\t\t\t\t
        \t\t1:Calculate savings per month to see best options for investment using
         that number.\n\t\t\t\t\t\t\t\t\t\t\t2: Press to research a company\n\t\t\
        t\t\t\t\t\t\t\t3: Press to look at companies sorted at your convenient
        parameter\n\t\t\t\t\t\t\t\t\t\t\tPress:");
    scanf("%d",&options);


    switch(options){


case 0:
    savedupmoney:
    savings=0;

    /*INPUT SAVINGS*/
    printf("\n\n\t\t\t\t\t\t\t\t\t\t\tEnter savings:");
```

```
scanf("%f",&savings);
if(savings<=0){
printf("\t\t\t\t\t\t----------HOPE YOUR FINANCIAL CONDITIONS GET
    BETTER----------\n\n");
break;
}

/*ASK FOR HOW LONG A PERSON WISHES TO KEEP A SHARE*/
printf("\n\t\t\t\tFor how long do you wish to keep the stocks? (advised max
    limit 12 months but you can put more at your own risk as our predictions
    are only for the next 12 months):");
scanf("%d",&nom);

/*Press:
*0: To see max profits by selling stocks
*1: Returns on the stock
*/
printf("\n\n\t\t\t\t\t\t\t\t\tSelect:\n\t\t\t\t\t\t\t\t\t\t\t0: To see max
     profits by selling stocks \n\t\t\t\t\t\t\t\t\t\t\t1: Returns on the stock
    \n\t\t\t\t\t\t\t\t\t\t\t Press:");
scanf("%d",&priorities);
printf("\n\n");


switch(priorities){

 /*RESULTS BASED ON PRIORITY ON AVERAGE GROWTH RATE = Cagr*/
case 0:
    agrSort();

    profit= (savings/3)*Company[29].Cagr+(savings/3)*Company[28].Cagr+(savings
        /3)*Company[27].Cagr;

    printf("\t\t\tWe only Allow a total of three companies to invest in at a
         time as that is the number permitted by International Broker
        Committee.\n\t\t\t Your Total profit for the investment %f in each
        company is %f ", (savings/3),profit);
    printf("\n\n");

    /*TABULATING THE DATA*/
    printf("\n\t\t\t\t
        ------------------------------------------------------------------------------------------------------------------------
        ;
    printf("\n\t\t\t\t Companies \t Company Name \t Sector         \t Average
        GrowthRate\t Average Profit-per-Month\t Price  ");
    printf("\n\t\t\t\t
        ------------------------------------------------------------------------------------------------------------------------
        ;
    printf("\n\t\t\t\t Company 1:\t %s\t %s\t %f\t %f\t                %f",
        Company[29].Cname,Company[29].Ctype,Company[29].Cagr,Company[29].Capps
        ,Company[29].Cprice);
```

```
    printf("\n\t\t\t\t Company 2:\t %s\t %s\t %f\t %f\t                %f",
        Company[28].Cname,Company[28].Ctype,Company[28].Cagr,Company[28].Capps
        ,Company[28].Cprice);
    printf("\n\t\t\t\t Company 3:\t %s\t %s\t %f\t %f\t                %f",
        Company[27].Cname,Company[27].Ctype,Company[27].Cagr,Company[27].Capps
        ,Company[27].Cprice);
    printf("\n\t\t\t\t
        ------------------------------------------------------------------------------------------
        ;
    break;

/*RESULTS BASED ON PRIORITY ON RATIO OF PROFIT PER PRICE OF ONE SHARE*/
case 1:
    appsSort();

    profit= ((savings/3)/Company[29].Cprice)*Company[29].Capps+((savings/3)/
        Company[28].Cprice)*Company[28].Capps+((savings/3)/Company[27].Cprice)
        *Company[27].Capps;
    printf("\t\t\t\tWe only Allow a total of three companies to invest in at a
         time as that is the number permitted by International Broker
        Committee.\n\t\t\t\t Your Total profit for the investment %f in each
        company is %f per month", (savings/3),profit);
    printf("\n\n");

    /*TABULATING THE DATA*/
    printf("\n\t\t\t\t
        ------------------------------------------------------------------------------------------
        ;
    printf("\n\t\t\t\t Companies \t Company Name \t Sector         \t Average
        GrowthRate\t Average Profit-per-Month\t Price  ");
    printf("\n\t\t\t\t
        ------------------------------------------------------------------------------------------
        ;
    printf("\n\t\t\t\t Company 1:\t %s\t %s\t %f\t %f\t                %f",
        Company[29].Cname,Company[29].Ctype,Company[29].Cagr,Company[29].Capps
        ,Company[29].Cprice);
    printf("\n\t\t\t\t Company 2:\t %s\t %s\t %f\t %f\t                %f",
        Company[28].Cname,Company[28].Ctype,Company[28].Cagr,Company[28].Capps
        ,Company[28].Cprice);
    printf("\n\t\t\t\t Company 3:\t %s\t %s\t %f\t %f\t                %f",
        Company[27].Cname,Company[27].Ctype,Company[27].Cagr,Company[27].Capps
        ,Company[27].Cprice);
    printf("\n\t\t\t\t
        ------------------------------------------------------------------------------------------
        ;
    break;


default:
    break;
```

```
}
break;
case 1:
    /*CALCULATING MONTHLY SAVINGS TO CALCULATE PROFITS
    *INPUT MONTHLY INCOME
    */
    printf("\t\t\t\t\t\t\t\t\t\t\tPlease enter monthly gross income to
        calculate your savings:");
    scanf("%f",&savingsamount);
    printf("\n\n");

    /*EACH STATE HAS DIFFERENT TAX SYSTEMS TO TAKING STATES BY SWITCH CASE
    *ENTER YOUR STATE:
    *LIST OF OPTIONS
    *SELECT:
    */
    printf("\t\t\t\t\t\t\t\t\t\t\tEnter your state (to know taxes):\n");

    printf("\t\t\t\t\t\t\t\t\t\t\tEnter your state from the list:\n\t\t\t\t\t\
        t\t\t\t\t\t  1.Maharashtra\n\t\t\t\t\t\t\t\t\t\t\t  2.Karnataka\n\t\t\
        t\t\t\t\t\t\t\t  3.Kerala\n\t\t\t\t\t\t\t\t\t\t\t  4.Tamil Nadu\n\t\
        t\t\t\t\t\t\t\t\t  5.Orissa\n\t\t\t\t\t\t\t\t\t\t\t  6.Uttar Pradesh
        \n\t\t\t\t\t\t\t\t\t\t\t  7.Bihar\n\t\t\t\t\t\t\t\t\t\t\t  8.Jammu &
        Kashmir\n\t\t\t\t\t\t\t\t\t\t\t  9.Rajasthan\n\t\t\t\t\t\t\t\t\t\t\t
        10.Punjab\n\t\t\t\t\t\t\t\t\t\t\t 11.Gujrat\n\t\t\t\t\t\t\t\t\t\t\t
        12.Andra Pradesh\n\t\t\t\t\t\t\t\t\t\t\t 13.Telengana\n\t\t\t\t\t\t\t\
        t\t\t\t  14.Punjab\n\t\t\t\t\t\t\t\t\t  Press the serial number to
        select state: ");
    scanf("%d",&state);
    printf("\n\n");

    /*ASSIGN TAXES*/
    if (state<5)
      tax=0.33;
    if (state>=5 && state<=10)
      tax=0.30;
    if (state>10 && state<=14)
      tax=0.25;
    if (state>14 && state<0)
      {printf("ERROR ERROR ERROR ERROR");
      break;
      }

     /*TO CALCULATE SAVINGS WE NEED TO DEDUCT LOAN EMIs SO USING A STRUCT AND
         FOR LOOP WE TAKE LOAN AMOUNTS*/
    printf("\t\t\t\t\t\t\t\t\t\t\tAre you in the process of repaying any loans
        ?(1 for Yes and 0 for No):");
    scanf("%d",&ans1);
    printf("\n\n");

    if(ans1==1){
```

```
        /*ENTER NO. OF LOANS*/
        printf("\t\t\t\t\t\t\t\t\t\tEnter the number of loans:");
        scanf("%d",&n);
        printf("\n\n");

        struct loans loan[n];

        for(int i=0; i<n; i++){
            /*LOAN AMOUNT*/
            printf("\t\t\t\t\t\t\t\t\t\tEnter Loan Amount:");
            scanf("%f",&loan[i].amount);

            /*LOAN INTEREST*/
            printf("\t\t\t\t\t\t\t\t\t\tEnter Loan Interest:");
            scanf("%f",&loan[i].interest);

            /*LOAN INTEREST*/
            printf("\t\t\t\t\t\t\t\t\t\tEnter Loan Time Period (in Months)
                :");
            scanf("%f",&loan[i].time);

            loan[i].emi=(loan[i].amount+(loan[i].amount*loan[i].interest*loan[
                i].time)/1200)/loan[i].time;
            emiamt=emiamt+loan[i].emi;
        }

        printf("\n\n");
        /*INPUT EXPENDITURE:*/
        printf("\t\t\t\t\t\t\t\t\t\tPlease Input your Expenditure on
            Groceries and Electricity:");
        scanf("%f",&expenditure);

        savings=(savingsamount*0.8)-(savingsamount*tax)-(expenditure)-emiamt;


    }

    else{
        /*INPUT EXPENDITURE*/
        printf("\t\t\t\t\t\t\t\t\t\tPlease Input your Expenditure on
            Groceries and Electricity:");
        scanf("%f",&expenditure);

        savings=(savingsamount*0.8)-(savingsamount*tax)-(expenditure)-emiamt;
    }

printf("\n\n");
/*SAVINGS ARE*/
printf("\t\t\t\t\t\t----------HERE WE TAKE MISCELLANEOUS AS 20
    PERCENT----------\n\n");
```

```
printf("\t\t\t\t\t\t\t\t\t\t\tYour Monthly savings are: %f",savings);
if(savings<=0){
printf("\n\t\t\t\t\t\t\t----------HOPE YOUR FINANCIAL CONDITIONS
    GET BETTER, USE OPTION 0 ON RESTARTING IF HAVE SOME SAVINGS SAVED UP
    ----------\n\n");
goto savedupmoney;
}
printf("\n\n");


/*FOR HOW LONG ONE WISHES TO KEEP THE STOCKS*/
printf("\t\t\t\t\t\t\t\t\t\tFor how long do you wish to keep the stocks? (
    max limit 12 months):");
scanf("%d",&nom);
printf("\n\n");

/*PRESS:
*0: TO SEE MAX PROFITS BY SELLING
*1: RETURNS ON THE STOCK PER MONTH
*/
printf("\n\t\t\t\t\t\t\t\t\t\tPress:\n\t\t\t\t\t\t\t\t\t\t0: To see max
    profits by selling stocks \n\t\t\t\t\t\t\t\t\t\t1: Returns on the stock
    ");
scanf("%d",&priorities);
printf("\n\n");

switch(priorities){

 /*RESULTS BASED ON PRIORITY ON AVERAGE GROWTH RATE = Cagr*/
case 0:
    agrSort();

    profit= (savings/3)*Company[29].Cagr+(savings/3)*Company[28].Cagr+(savings
        /3)*Company[27].Cagr;

    printf("\t\t\t\tWe only Allow a total of three companies to invest in at a
         time as that is the number permitted by International Broker
        Committee.\n\t\t\t\t Your Total profit for the investment %f in each
        company is %f ", (savings/3),profit);
    printf("\n\n");

    /*TABULATING THE DATA*/
    printf("\n\t\t\t\t\t
        ------------------------------------------------------------------------------------------------------------------------
        ;
    printf("\n\t\t\t\t\t Companies \t Company Name \t Sector        \t Average
        GrowthRate\t Average Profit-per-Month\t Price  ");
    printf("\n\t\t\t\t\t
        ------------------------------------------------------------------------------------------------------------------------
        ;
    printf("\n\t\t\t\t\t Company 1:\t %s\t %s\t %f\t %f\t                %f",
```

```
        Company[29].Cname,Company[29].Ctype,Company[29].Cagr,Company[29].Capps
        ,Company[29].Cprice);
    printf("\n\t\t\t\t Company 2:\t %s\t %s\t %f\t %f\t                %f",
        Company[28].Cname,Company[28].Ctype,Company[28].Cagr,Company[28].Capps
        ,Company[28].Cprice);
    printf("\n\t\t\t\t Company 3:\t %s\t %s\t %f\t %f\t                %f",
        Company[27].Cname,Company[27].Ctype,Company[27].Cagr,Company[27].Capps
        ,Company[27].Cprice);
    printf("\n\t\t\t\t
        ------------------------------------------------------------------------------------------
        ;
    break;

/*RESULTS BASED ON PRIORITY ON RATIO OF PROFIT PER PRICE OF ONE SHARE*/
case 1:
    appsSort();

    profit= ((savings/3)/Company[29].Cprice)*Company[29].Capps+((savings/3)/
        Company[28].Cprice)*Company[28].Capps+((savings/3)/Company[27].Cprice)
        *Company[27].Capps;
    printf("\t\t\t\tWe only Allow a total of three companies to invest in at a
         time as that is the number permitted by International Broker
        Committee.\n\t\t\t\t Your Total profit for the investment %f in each
        company is %f per month", (savings/3),profit);
    printf("\n\n");

    /*TABULATING THE DATA*/
    printf("\n\t\t\t\t
        ------------------------------------------------------------------------------------------
        ;
    printf("\n\t\t\t\t Companies \t Company Name \t Sector         \t Average
        GrowthRate\t Average Profit-per-Month\t Price  ");
    printf("\n\t\t\t\t
        ------------------------------------------------------------------------------------------
        ;
    printf("\n\t\t\t\t Company 1:\t %s\t %s\t %f\t %f\t                %f",
        Company[29].Cname,Company[29].Ctype,Company[29].Cagr,Company[29].Capps
        ,Company[29].Cprice);
    printf("\n\t\t\t\t Company 2:\t %s\t %s\t %f\t %f\t                %f",
        Company[28].Cname,Company[28].Ctype,Company[28].Cagr,Company[28].Capps
        ,Company[28].Cprice);
    printf("\n\t\t\t\t Company 3:\t %s\t %s\t %f\t %f\t                %f",
        Company[27].Cname,Company[27].Ctype,Company[27].Cagr,Company[27].Capps
        ,Company[27].Cprice);
    printf("\n\t\t\t\t
        ------------------------------------------------------------------------------------------
        ;
    break;


default:
```

```
    break;

}
break;

/*RESULTS BASED ON USER'S SEARCH*/
case 2:
    /*Press corresponding serial numbers to search in the sector
    * Sector wise display of companies:
    * 1. Tech
    * 2.Foods And Beverages
    * 3.Delivery
    * 4.Social Media
    * 5.Finance
    * 6.Petroleum
    */
    printf("\t\t\t\t\t\t\t\t\t\tPress corresponding serial numbers to search
        in the sector\n");
    printf("\t\t\t\t\t\t\t\t\t\tSector wise display of companies:\n\t\t\t\t\
        t\t\t\t\t\t\t 1. Tech\n\t\t\t\t\t\t\t\t\t\t\t 2.Foods And Beverages\n\
        t\t\t\t\t\t\t\t\t\t 3.Delivery\n\t\t\t\t\t\t\t\t\t\t 4.Social
        Media\n\t\t\t\t\t\t\t\t\t\t 5.Finance\n\t\t\t\t\t\t\t\t\t\t 6.
        Petroleum");

    /*SECTOR WISE SEARCH*/
    printf("\n\t\t\t\t\t\t\t\t\t\tSector:");
    scanf("%d",&sector);


    switch(sector){

        /*TECH SECTOR*/
   case 1:
     for(int i=0; i<=4; i++){
        printf("\t\t\t\t\t\t\t\t\t\t%d . %s \n",(i+1),Company1[i].Cname);
    }
    printf("\t\t\t\t\t\t\t\t\tPress serial no to select company:");
        scanf("%d",&scinput);
        if(scinput<0 && scinput>4){
            break;
        }
        else{
            scompany=scinput-1;
        }
    break;

         /*FOODS AND BEVERAGES SECTOR*/
    case 2:
    for(int i=5; i<=9; i++){
        printf("\t\t\t\t\t\t\t\t\t\t%d . %s \n",(i+1),Company1[i].Cname);
    }
```

```
printf("\t\t\t\t\t\t\t\t\tPress serial no to select company:");
    scanf("%d",&scinput);
    if(scinput<5 && scinput>9){
        break;
    }
    else{
        scompany=scinput-1;
    }
break;

     /*DELIVERY SECTOR*/
case 3:
for(int i=10; i<=14; i++){
    printf("\t\t\t\t\t\t\t\t\t%d . %s \n",(i+1),Company1[i].Cname);
}
printf("\t\t\t\t\t\t\t\t\tPress serial no to select company:");
    scanf("%d",&scinput);
    if(scinput<10 && scinput>14){
        break;
    }
    else{
        scompany=scinput-1;
    }
break;

     /*SOCIAL MEDIA SECTOR*/
case 4:
for(int i=15; i<=19; i++){
    printf("\t\t\t\t\t\t\t\t\t%d . %s \n",(i+1),Company1[i].Cname);
}
printf("\t\t\t\t\t\t\t\t\tPress serial no to select company:");
    scanf("%d",&scinput);
    if(scinput<15 && scinput>19){
        break;
    }
    else{
        scompany=scinput-1;
    }
break;

     /*FINANCE SECTOR*/
case 5:
for(int i=20; i<=24; i++){
    printf("\t\t\t\t\t\t\t\t\t%d . %s \n",(i+1),Company1[i].Cname);
}
printf("\t\t\t\t\t\t\t\t\tPress serial no to select company:");
    scanf("%d",&scinput);
    if(scinput<20 && scinput>24){
        break;
    }
    else{
```

```
            scompany=scinput-1;
        }
    break;

        /*PETROLEUM SECTOR*/
    case 6:
    for(int i=25; i<=29; i++){
        printf("\t\t\t\t\t\t\t\t\t\t\t%d . %s \n",(i+1),Company1[i].Cname);
    }
    printf("\t\t\t\t\t\t\t\t\t\tPress serial no to select company:");
        scanf("%d",&scinput);
        if(scinput<25 && scinput>29){
            break;
        }
        else{
            scompany=scinput-1;
        }
    break;

}
/*SECTOR*/
printf("\t\t\t\t\t\t\t\t\t\t\t%s\n",Company1[scompany].Ctype);

printf("%s:is rated at %f per share and return a growth rate on the stock at %
    f and return an average of %f dollars per month in earnings (all these
    values are projections and subject to conjecture invest at own risk)\n\n\n
    ",Company1[scompany].Cname,Company1[scompany].Cprice,Company1[scompany].
    Cagr,Company1[scompany].Capps);
break;

     /*SEARCH A COMPANY SORTED BY PRICE(Cprice), AVERAGE GROWTH RATE( Cagr ),
         RETURNS PER MONTH( Capps )*/
    case 3:
        printf("\t\t\t\t\t\t\t\t\t\tPress:\n\t\t\t\t\t\t\t\t\t\t\t 1: To
            List sorted by Price\n\t\t\t\t\t\t\t\t\t\t\t 2. To see list sorted
             by growth rate\n\t\t\t\t\t\t\t\t\t\t\t 3. To see list sorted by
            returns\n\t\t\t\t\t\t\t\t\t\t\t press:");
        scanf("%d",&sortl);

        if(sortl==1){
            priceSort();
        }
        if(sortl==2){
            agrSort();
        }
        if(sortl==3) {
            appsSort();
            printf("\t\t\t\t\t\t----------HERE BY RETURN WE MEAN
                RATIO OF RETURNS PER MONTH TO PRICE----------");
        }
```

```
                printf("\n\t\t\t\t\t
                    ------------------------------------------------------------------------------------------------------------------------
                    ;
                printf("\n\t\t\t\t\t Companies \t Company Name \t Sector          \t Average
                    GrowthRate\t Average Profit-per-Month\t Price  ");
                printf("\n\t\t\t\t\t
                    ------------------------------------------------------------------------------------------------------------------------
                    ;
                    for(int i=0; i<=29; i++)
                        {
                        printf("\n\t\t\t\t Company %d:\t %s\t %s\t %f\t %f\t
                                        %f",(i+1),Company[i].Cname,Company[i].Ctype,
                            Company[i].Cagr,Company[i].Capps,Company[i].Cprice);
                        }
                printf("\n\t\t\t\t\t
                    ------------------------------------------------------------------------------------------------------------------------
                    ;

        }

        /*WHILE LOOP THAT WHOSE REPEAT VALUE IF CHANGED WILL STOP LOOPING*/
        printf("\n\t\t\t\t\t\t\t\t\t\tDo you wish to go again?(Press 1 for yes and any
            other key for no):");
        scanf("%d",&repeat);
    }
    }
    fclose(fptr);
    return 0;
}
```

6 Results

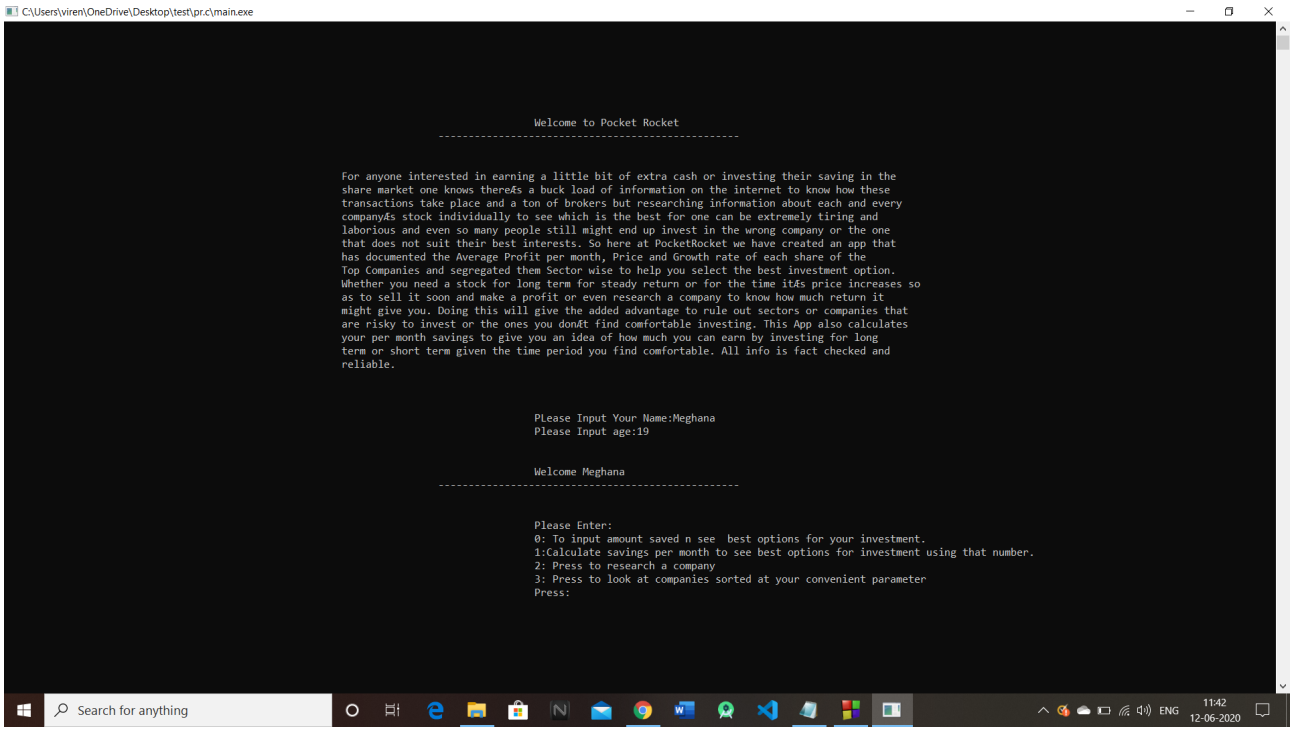


Figure 2: Home Screen: takes age ,starts loop , and gives broad options

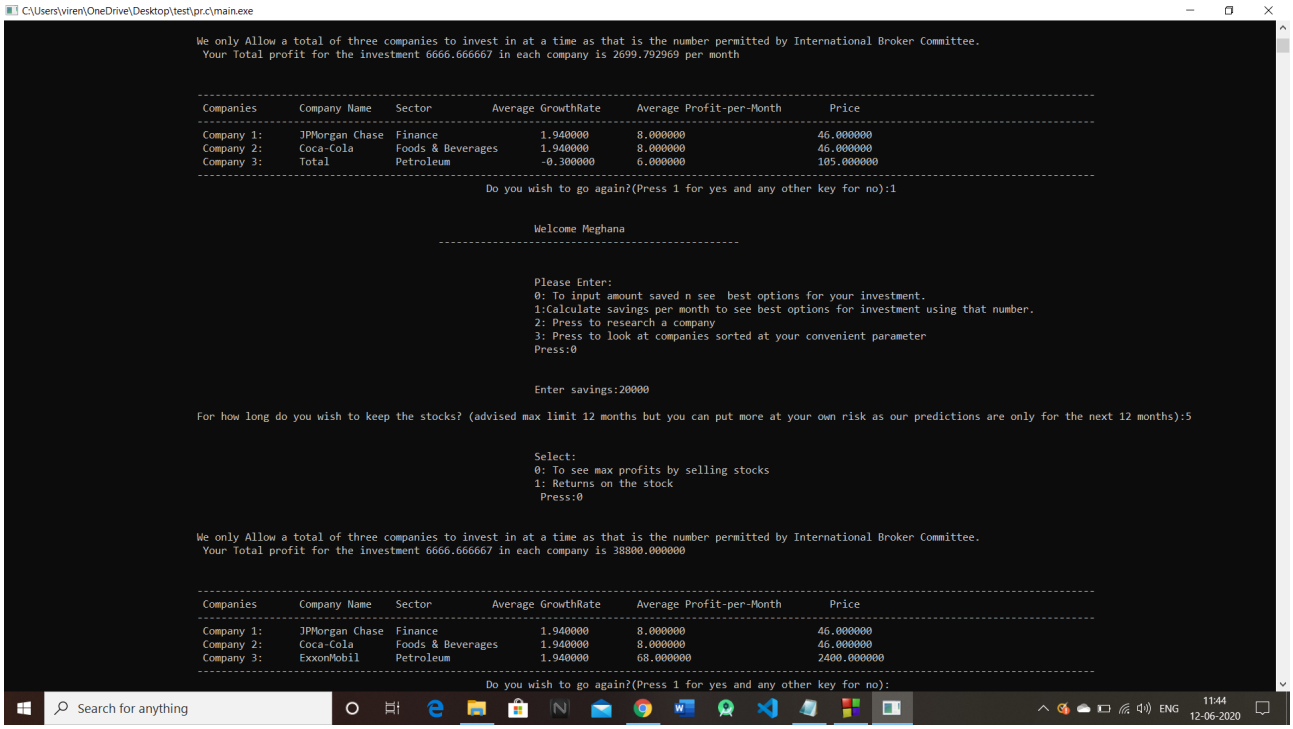


Figure 3: Option $0_maxprofits$: $selectingtoinputsavingsandseehowtheywouldgrowbysellingthestocksfort$

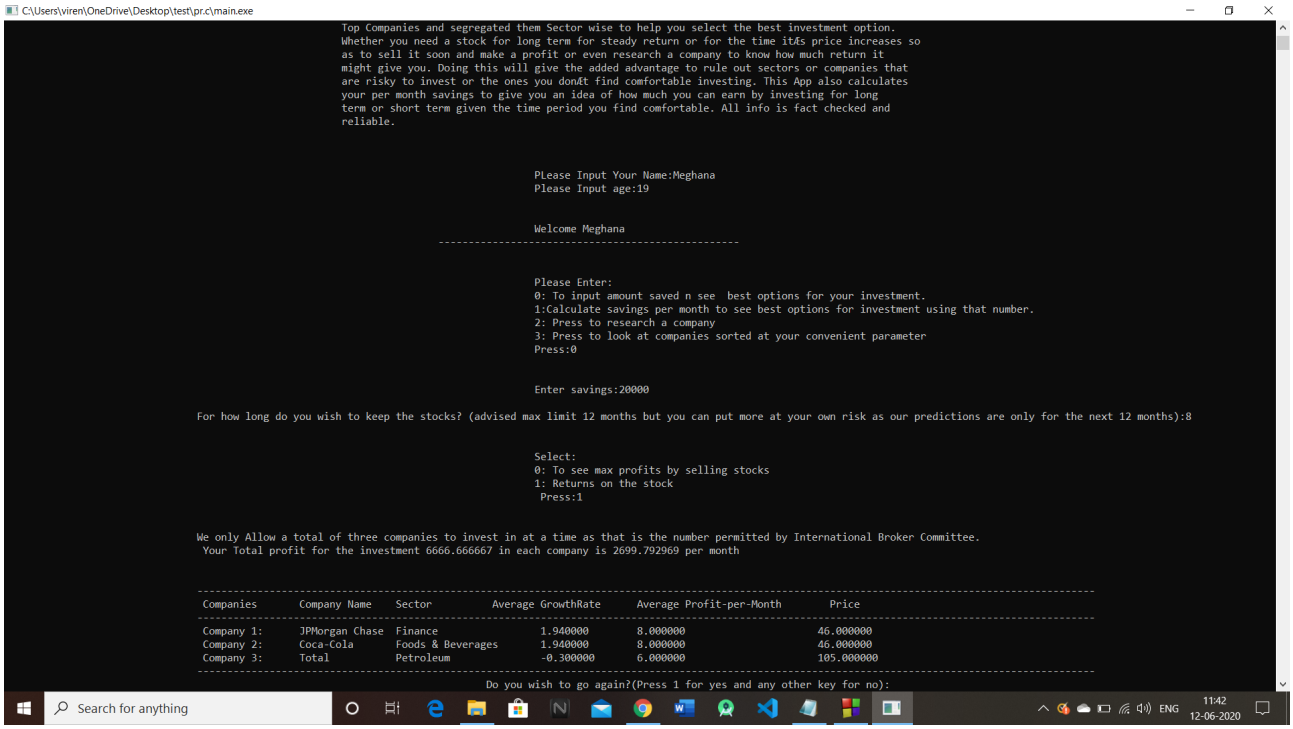


Figure 4: Option 0,*eturnsonstock* : *selectingtoinputsavingsandseehowtheywouldgrowbykeepingthestocks*

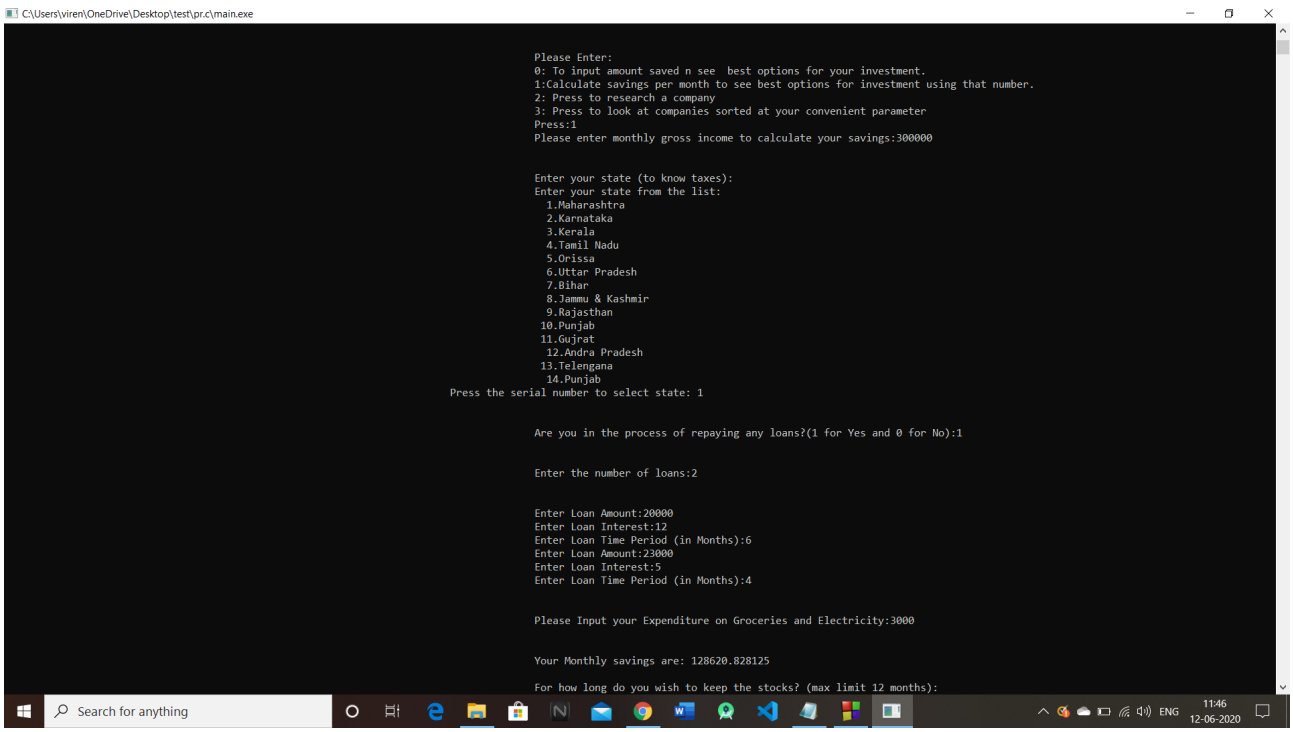


Figure 5: Option 1: gives advide on stock investing after calculating monthly savings to show how a one month savings can grow over the months in the stocks also taking 20 percent as miscelaneous

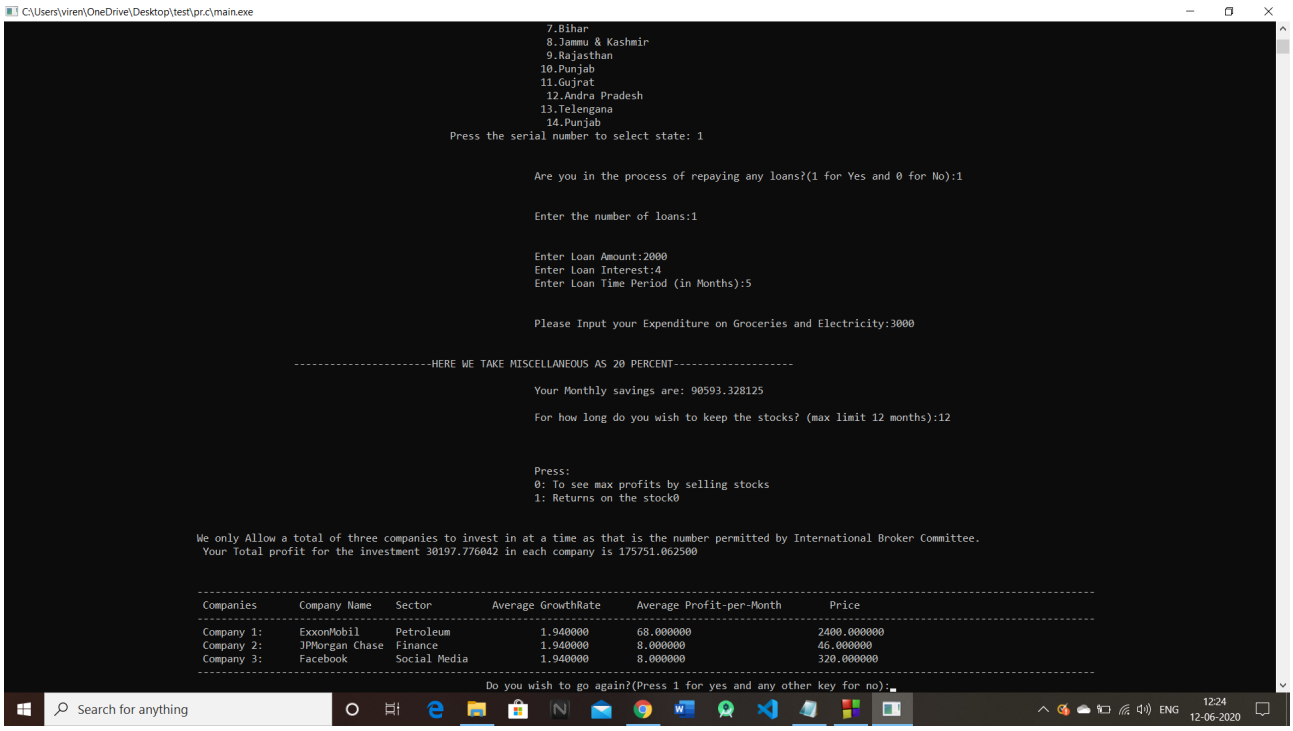


Figure 6: Option 1$_{C}$*ontinue*

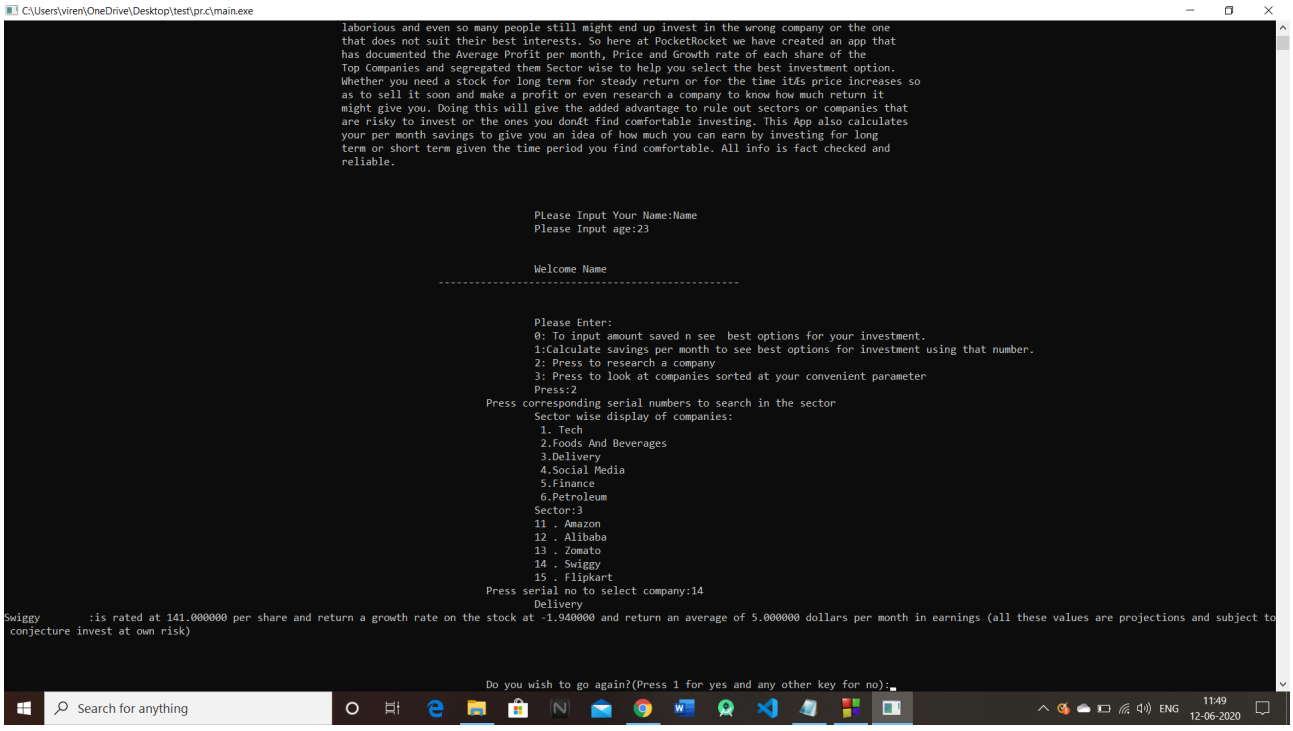


Figure 7: Option 2: search a company by sector

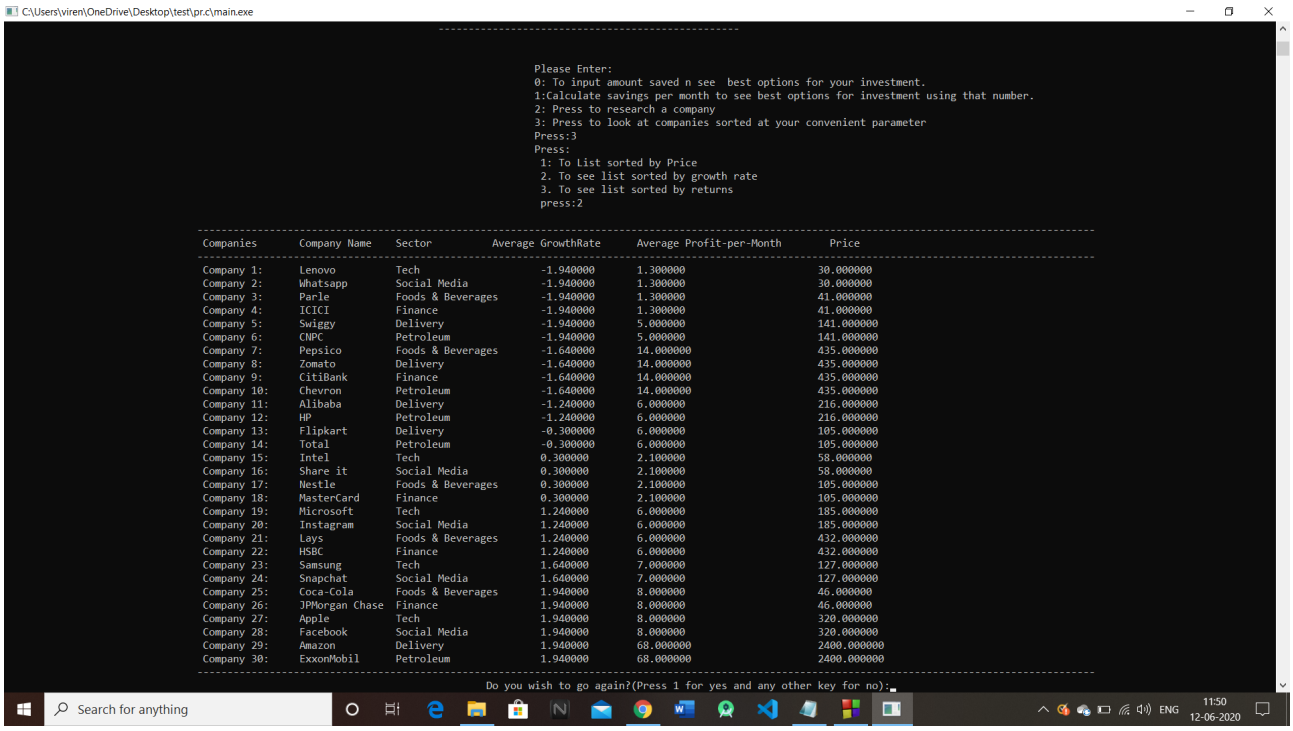


Figure 8: Option $3_s ort_b y_g rowth_r ate$: $showtabulateddatainincreasingorderofgrowthrateofpriceofstock$

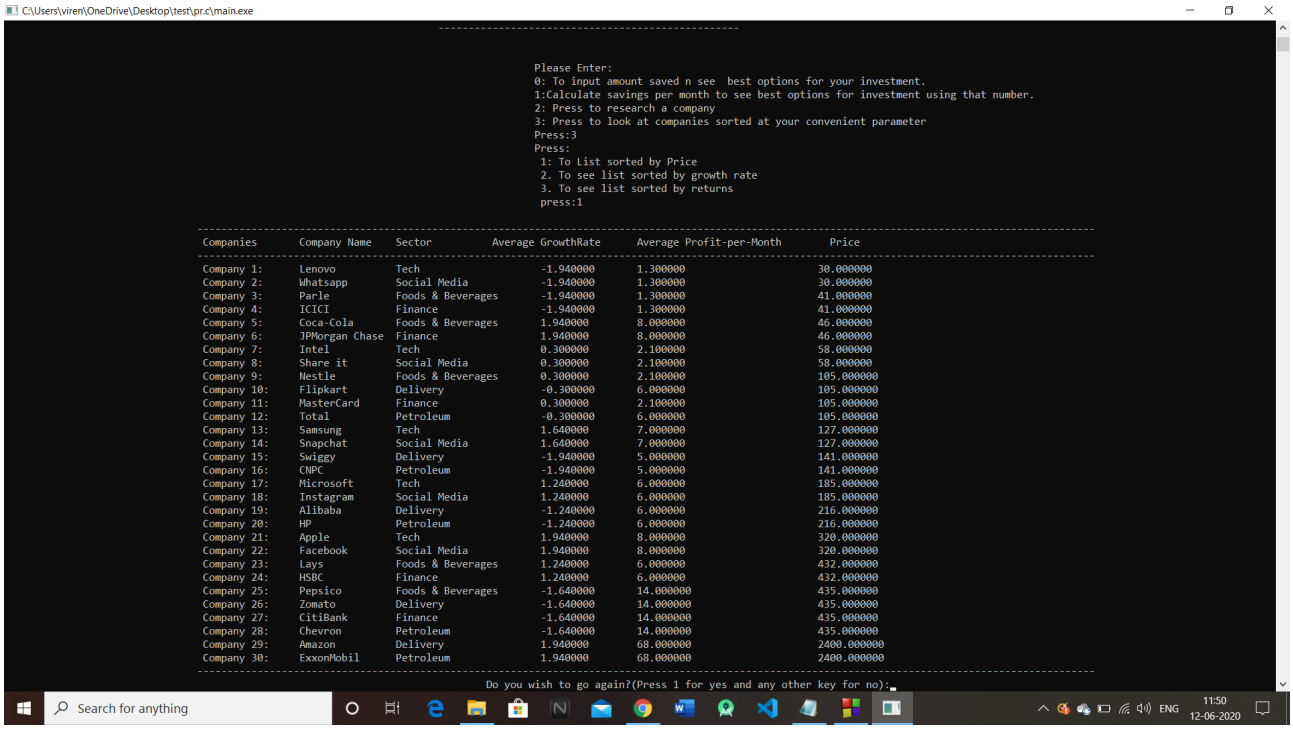


Figure 9: Option $3_s ort_b y_p rice$: $showtabulateddatainincreasingorderofprice$

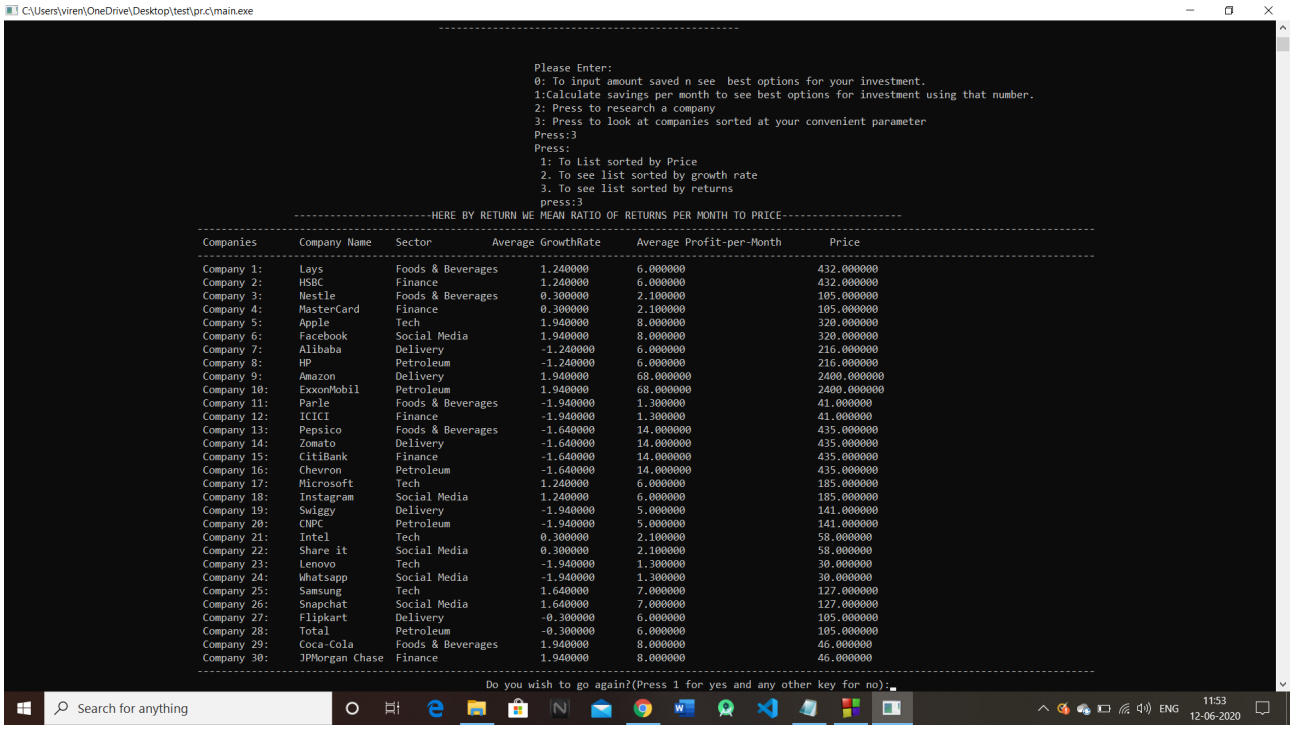


Figure 10: Option $3_s ort_b y_p rice$: $showtabulateddatainincreasingorderofratioofreturnsistoprice$

7 References:

1. 1. https://www.moneycontrol.com/stocksmarketsindia/

2. https://money.rediff.com/index.html

3. https://markets.businessinsider.com/stocks/aapl-stock

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