A Java application for Investment Assistant

Programme: Computing for Financial Markets

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INTRODUCTION

Research overview

Recently, it is argued that whether or not there is profitability and efficiency of investment projects.

The purpose of the project is to build a Investment Assistant System to help investors compare different investment projects and make investment decisions. This system is designed based on a Java application.

It will allow customers to calculate main financial indicators of investment projects, for example NFV(Net futrue value), NPV(Net present value),IRR (Internal Rate of Return).

Based on the values of the indicators, the customers will be able to evaluate the financial profitability and efficiency of investment projects.

Research objectives

- To design and apply Java software on finacial area.
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- To explore the probability of using computer program and data to replace human beings to make investment decisions.
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- To investigate and analyze the objectivity of using financial indicators to evaluate the financial profitability and efficiency of investment projects.
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- To explore how to implement finacial calculations on Java software.
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- Provide a simple and convienent interface to customers and let them use textfields or files to input data and press the buttons to display the calculation results.

Value of the research

- This project is an attempt of combing Investment, Corporate Finance together with the Java Implementation. Based on the calculation function of the system, It will provide the customers a convenient interface to input data and display the result.

- The result will be used to evaluate the financial profitability and efficiency of investment projects. So that the system could help Investors make investment decsions.

Background knowledge

Net Present Value

- In finace, the net present value (NPV) is defined as the sum of the present values(PVs) of the individual cash flows.

The discount rate

- The rate used to discount future cash flows to the present value is a key variable of this process.

Related Work

Financial Analysis Using Microsoft Excel

- There are some related formulaes in Excel, for example:
- NPV(rate,net_inflow)+initial_investment
- PV(rate,year_number,yearly_net_inflow)
- Strength: Function is powerful; Very popular in financial markets
- Weakness: Difficult to learn; Interface is not convenient.

Financial Calculators

- A **financial calculators** is an electornic calculator that performs financial functions commonly needed in business and commerce communities.

- Strength: Making such calculations more direct than on standard calculators.

  Weakness: Not easy to carry; Costy.

Methodology

Formula of NPV

$$\frac{R_t}{(1+i)^t}$$

where

- t - the time of the cash flow
- i - the discount rate
- R_t - the net cash flow.

NPV in decision making

- NPV is an indicator of how much value an investment or project adds to the firm.

- Appropriately risked projects with a positive NPV could be accepted.

- In financial theory, if there is a choice between two mutually exclusive alternatives, the one yielding the higher NPV should be selected.

Java implementation

Using files to store and modify investment periods together with their cashflows of different projects.

Using textfields to specify and chang the discount rates of each project.

Changing the number of investment periods and projects with the help of the "Add" and "Delete" buttons.

Using "Compare" button to compare the NPV of each projects and display the result on a textarea, so as to help customers make investment decisions.

Alternative solutions

Internal rate of return

- The internal rate of return on an investment or project is the discount rate that makes the NPV of all cashflows from a particular investment equal to zero.

- Internal rates of return are commonly used to evaluate the desirability of investments or projects. The higher a project's internal rate of return, the more desirable it is to undertake the project.

- It is acceptable for the java program to calculate

- the IRR of each investment projects to assist making investment decisions.

Assessment

Testing

- Using Black Box approach to devise sample data that could represent all possible data of the financial case.

Feed back

- Getting the feed back of my financial course tutor and the potential customers to modify and improve the program.

Thank you!

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