

Fof量化投资交易管理系统

**Quantitative Investment Transaction**

**Management System of FOF**

**数据结构**



**Data Structure**

——2016届“花旗杯”金融创新应用大赛

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# Interoduction

## Aim

This guiding book of data base is going to better design the data base and illustrate the reasonableness of data base during the process of system design. The prospective users of this guiding book are designers of system, system testers and maintenance administrator. This guiding book is used to help the designers design a high proficient database, whose stored data can satisfy the need of system and the completeness

## Background

The database’s name is fofquant, which serves in the quantitative investment transaction management system of FOF. In addition, this is a enterprise software.

## Reference

[1] the China National Standardization Management Committee．GB/T 8567-2006 Computer software documentation specification［S］．Beijing：Standard press of China 2006.9.

# External Design

## Introduction of Modules

All modules in the system, inextricably linked to the data base.

Database main deposit fund net value of historical information, basic information, fund allocation, FOF basic information, FOF historical information. We use mysql as the database of this development, it has small volume, quick speed, low total cost of ownership, and the advantages of open source, at the same time we use mysql navicat as database management tools, and convenient operation can make us better in the management of the database.

## Regulations

In order to avoid the unnecessary mistakes during the process of product design and development and ensure we can manage the data base conveniently and proficiently,we establish here that the underline must separate the terms in the table names.

# Design of Data Structure

## Basic Design Data

### Fund Asset Allocation

Table name：asset\_allocation

|  |  |  |
| --- | --- | --- |
| Column Name | Description | Data Type |
| code | Fund code | varchar(255) |
| date | date | varchar(255) |
| stock\_value | Stock hold value(billion) | double |
| stock\_ratio | Sotck net worth ratio(%) | double |
| bond\_value | Bond hold value(billion) | double |
| bond\_ratio | Bond net worth ratio(%) | double |
| cash\_value | Cash value(billion) | double |
| cash\_ratio | Cast ratio(%) | double |
| total\_value | Total value（billion） | double |
| net\_value | Total net value (billion) | double |
| other\_ratio | Other type asset(billion) | double |
| other\_value | Other type net worth ratio(%) | double |



### Fund Bond Allocation

Table name：bond\_bold\_info

|  |  |  |
| --- | --- | --- |
| Column Name | Description | Data Type |
| date | Date | varchar(255) |
| fund\_code | Fund code | varchar(255) |
| bond\_name | Bond name | varchar(255) |
| hold\_num | Hold positions(million) | double |
| value | Hold value(billion) | double |
| ratio | Net worth ratio | double |

### Fund Stock Allocation

Table name：stock\_hold\_info

|  |  |  |
| --- | --- | --- |
| Column | Description | Data Type |
| date | Date | varchar(255) |
| fund\_code | Fund code | varchar(255) |
| stock\_code | Stock code | varchar(255) |
| stock\_name | Stock name | varchar(255) |
| hold\_num | Hold positions(million) | double |
| value | Hold value(billion) | double |
| ratio | Net worth ratio | double |

### Fund Industry Allocation

Table name：industry\_hold\_info

|  |  |  |
| --- | --- | --- |
| Column | Description | Data Type |
| date | Date | varchar(255) |
| fund\_code | Fund code | varchar(255) |
| industry\_code | Industry code | varchar(255) |
| industry\_name | Industry name | varchar(255) |
| value | Hold value(billion) | double |
| ratio | Net worth ratio | double |

### Fund Manage Company

Table name：company\_info

|  |  |  |
| --- | --- | --- |
| Column | Description | Data Type |
| company\_id | Company id | varchar(255) |
| company\_name | Company name | varchar(255) |
| scale | Company scale | double |
| fund\_num | The fund number in company | int |
| establish\_date | The establish time of the company | varchar(255) |
| manager\_name | The name of the general manager of the company | varchar(255) |

### Fund Basic Information

Table name：fund\_info

|  |  |  |
| --- | --- | --- |
| Column | Description | Data Type |
| code | Fund code | varchar(255) |
| simple\_name | Fund’s simple name | varchar(255) |
| full\_name | Fund’s full name | varchar(255) |
| establish\_date | The establish date of the fund | varchar(255) |
| establish\_scale | The establish scale of the fund(billion) | double |
| scale | The current scale of the fund(billion) | double |
| net\_value | Total value(billion) | double |
| manage\_fee | Manage fee(%) | double |
| trustee\_fee | Trustee fee(%) | double |
| sale\_service\_fee | Service fee(%) | double |
| compare\_base | Compare base | varchar(255) |
| invest\_target | Invest target | varchar(255) |
| invest\_type | Invert type | varchar(255) |
| company\_id | The id of the manage company | varchar(255) |
| rank | The rank starts | int |

### Realtime Information of Fund

Table name：fund\_quick\_info

|  |  |  |
| --- | --- | --- |
| Column | Description | Data Type |
| fund\_code | Fund code | varchar(255) |
| simple\_name | Fund simple name | varchar(255) |
| net\_worth | Net worth | double |
| daily\_rise | Daily rise(%) | double |
| one\_month | Rise rate near one month(%) | double |
| three\_month | Rise rate near three months(%) | double |
| six\_month | Rise rate near six months(%) | double |
| one\_year | Rise rate near one year(%) | double |
| three\_year | Rise rate near three years(%) | double |
| five\_year | Rise rate near five years(%) | double |
| since\_establish | Rise rate since established(%) | double |
| year\_rate | Year profit rate（%） | double |

### Historical Information of Fund

Table name：net\_worth

|  |  |  |
| --- | --- | --- |
| Column | Description | Data Type |
| date | Date | varchar(255) |
| code | Fund code | varchar(255) |
| unit\_worth | Unit net worth | double |
| total\_worth | Toal net worth | double |
| daily\_rise | Daily rise | double |
| fqnet | Adjusted net worth | double |

### Index Basic Information

Table Name：index\_info

|  |  |  |
| --- | --- | --- |
| Column | Description | Data Type |
| index\_code | Index code | varchar(255) |
| index\_name | Index name | varchar(255) |
| startDate | Index establish date | varchar(255) |

### Historical Close Information of Index

Table name：index\_price

|  |  |  |
| --- | --- | --- |
| Column | Description | Data Type |
| code | Index code | varchar(255) |
| date | Date | varchar(255) |
| close | Close value | double |
| daily\_rise | Daily profit（%） | double |

### Codes In Sector Information

Table name：sector\_fund\_info

|  |  |  |
| --- | --- | --- |
| Column | Description | Data Type |
| sector\_id | Sector id | varchar(255) |
| code | Fund code | varchar(255) |

### Sector Basic Information

Table name：sector\_info

|  |  |  |
| --- | --- | --- |
| Column | Description | Data Type |
| sector\_id | Sector id | varchar(255) |
| sector\_name | Sector name | varchar(255) |

### FOF Basic Information

Table name：fof\_info

|  |  |  |
| --- | --- | --- |
| Column | Description | Data Type |
| fof\_id | Fof code | varchar(255) |
| fof\_name | Fof name | varchar(255) |
| establish\_date | Establish date | varchar(255) |
| establish\_scale | Establish scale | double |
| compare\_base | Compare base | varchar(255) |
| net\_asset | Current net asset | double |
| scale | Current scale | double |
| net\_worth | Net worth | double |
| total\_profit | Total profit(%) | double |
| current\_cost | Current position cost | double |

### FOF Historical Position Information

Table name：fof\_hold\_info

|  |  |  |
| --- | --- | --- |
| Column | Description | Data Type |
| fof\_id | Fof code | varchar(255) |
| fund\_id | Fund code | varchar(255) |
| date | Date | varchar(255) |
| net\_worth | Net worth | double |
| hold\_num | Hold number | double |
| hold\_value | Hold value | double |
| ratio | Hold ratio(%) | double |
| day\_profit | Daily profit(%) | double |
| float\_profit | Float profit | double |
| float\_profit\_rate | Float profit rate(%) | double |
| total\_profit | Total profit | double |
| total\_profit\_rate | Total profit rate(%) | double |
| finished\_profit | Finished profit | double |

### FOF Historical returns Information

Table name：history\_info

|  |  |  |
| --- | --- | --- |
| Column | Description | Data Type |
| fof\_id | Fof code | varchar(255) |
| date | Date | varchar(255) |
| total\_profit | Total profit | double |
| total\_profit\_rate | Total profit rate(%) | double |
| cash\_value | Cash value | double |

### FOF Establish Information

Table name：establish\_info

|  |  |  |
| --- | --- | --- |
| Column | Description | Data Type |
| fof\_code | Fof code | varchar(255) |
| fund\_code | Fund code | varchar(255) |
| buy\_date | Buy date | varchar(255) |
| buy\_price | Buy unit price | double |
| buy\_number | Buy number | double |
| cost | Cost | double |
| other\_fee | Other fee | double |

### FOF Position Alteration

Table name：position\_change

|  |  |  |
| --- | --- | --- |
| Column | Description | Data Type |
| id | Id | int |
| fof\_code | Fof code | varchar(255) |
| change\_date | Adjust date | varchar(255) |
| change\_time | Adjust time | varchar(255) |
| fund\_code | Fund code | varchar(255) |
| fund\_name | Fund name | varchar(255) |
| buy\_num | Buy number | double |
| buy\_price | Buy price | double |
| sale\_num | Sale number | double |
| sale\_price | Sale price | double |
| isHandle | Whether is handled | Boolean |



### User Information

Table name：user

|  |  |  |
| --- | --- | --- |
| Column | Description | Data Type |
| username | Username | varchar(255) |
| password | Password | varchar(255) |
| name | The name of the user | varchar(255) |
| usertype | The type of the user | varchar(255) |
| gender | The gender of the user | varchar(255) |

## Performing Design

According to our design, in order to improve the safety of database, especially those restoring information of users, we will classify the users into different groups according to their access right. The prime users of this database are designers of system and maintenance administrator. Designers of different modules will be given varied access right.