

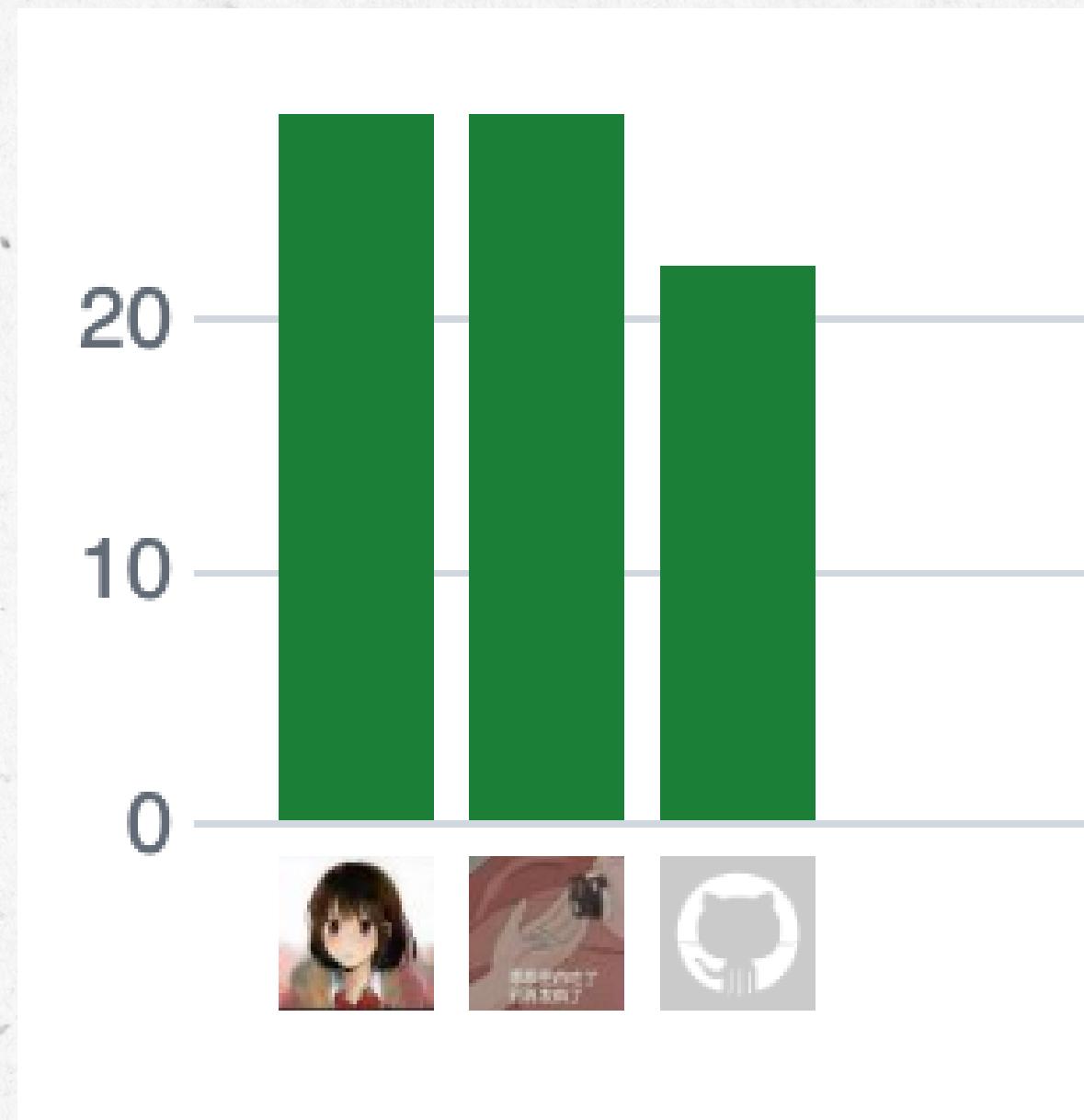
FinEasy

Simplifying Personal Finance

Presented by

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Our Team



git commits

Contributions

Boyuan

Lists, Stacks, code refactor, UI improvment
test, prototype design, proposal,

Jinming

Sorting, Front-end development
PPT and video

Qianru

Binary Search Tree, UI improvment
Text review

About FinEasy

- Personal financial management
- JavaFX-based application
- Utilizes multiple ADTs for efficiency



Problem Statement & Our Value

- Wide use of mobile payment [1]
- The higher the use of digital payment, the higher the consumer behaviour of student [2]
- failure to keep track of (monitor) one's own behavior renders control difficult [3]
- tools for recording, categorizing, and visualizing financial transactions



System Design

FINEASY

FinEasy

Search By: Type/Category/Comment Search

Sort By

ID	Type	Category	Date	Amount	Comment
1	Expense	Food	2024-04-15	50.0	Lunch with friends
2	Income	Education	2024-04-15	1500.0	Monthly salary
3	Expense	Food	2024-04-15	300.0	New headphones
4	Expense	Education	2024-04-15	120.0	Weekly groceries
5	Income	Education	2024-04-15	200.0	Freelance project
6	Expense	Entertainment	2024-04-15	60.0	Cinema tickets
7	Expense	Daily	2024-04-15	400.0	Weekend trip
8	Income	Gift	2024-04-15	250.0	Birthday money
9	Expense	Daily	2024-04-15	100.0	Pharmacy
10	Expense	Transportation	2024-04-15	90.0	Programming books

Add Undo Delete

FINEASY

FinEasy

Search By: Type/Category/Comment Search

Add Transaction

ID
1
2
3
4
5
6
7
8
9
10

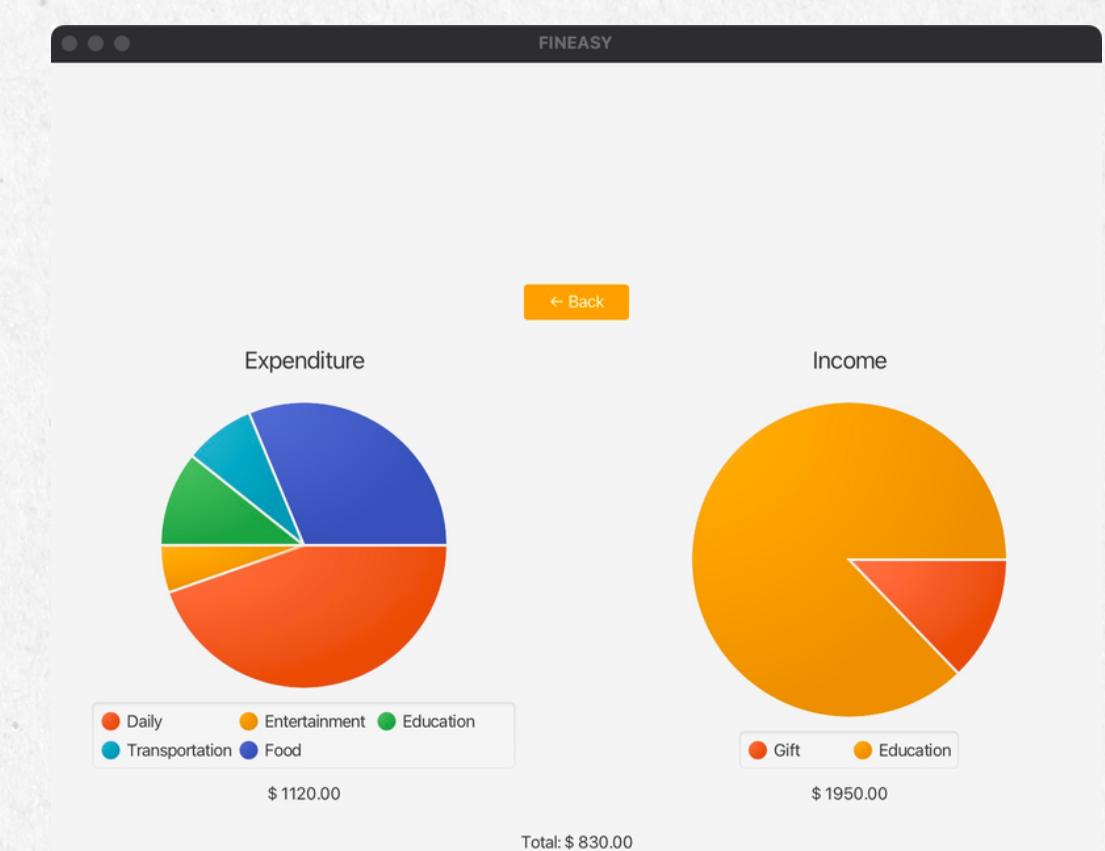
Amount

Type:

Comment:

Date:

Add Undo Delete



Implementation

- **Lists** - data storage & management
- **Stacks** - undo functionality
- **BST** - efficient record searching
- **Sorting** - transaction organization



List

Why?

Random access

Locate with position

What?

Position number

Node - Transaction Object

How?

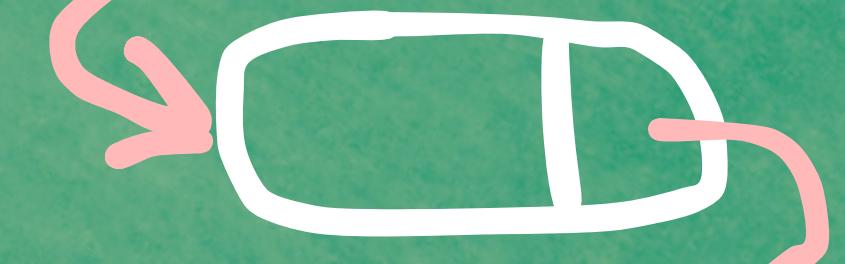
Linked List

position: data pointer

1



2



3



4



Stack

How?

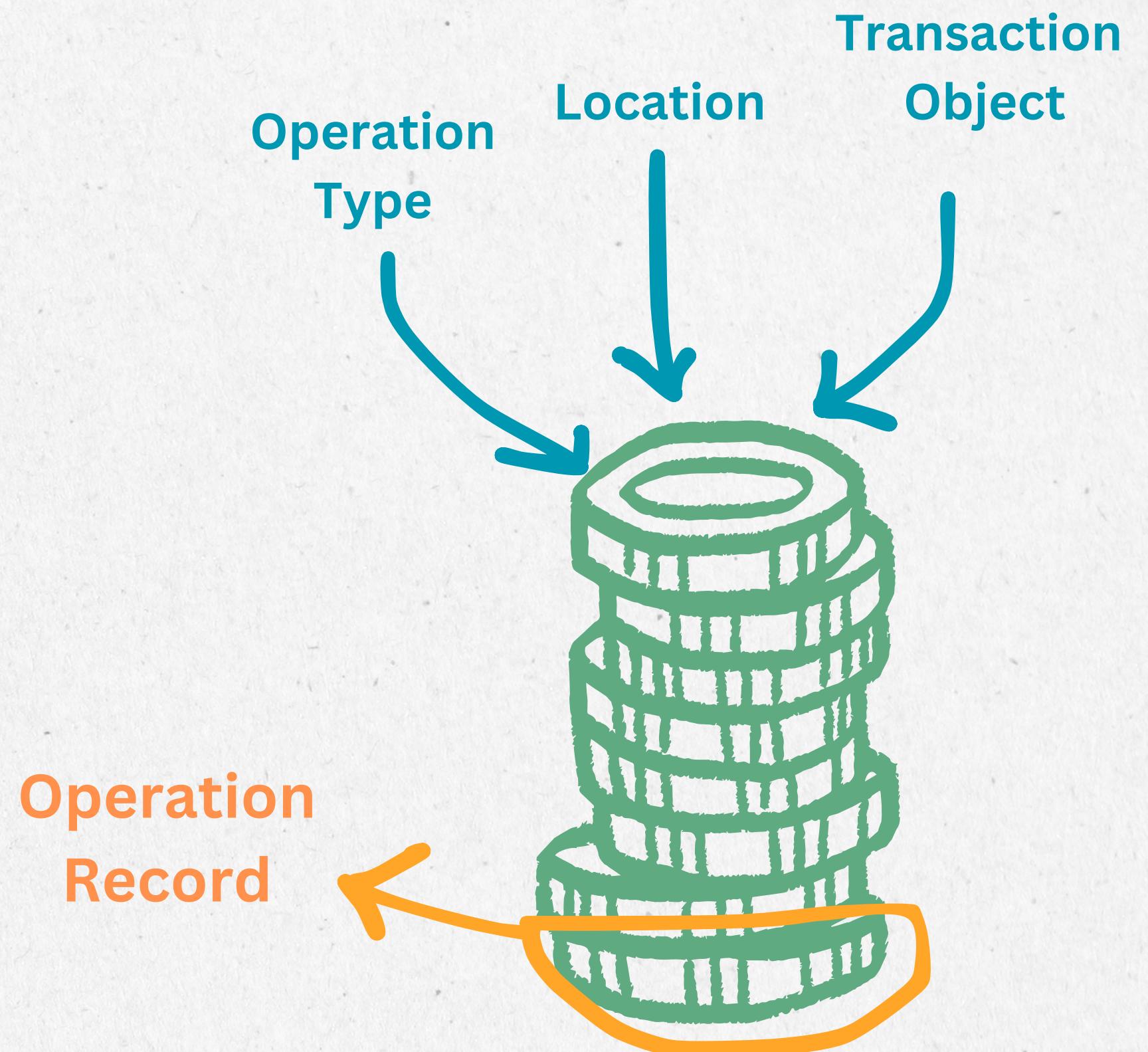
Operation: added / deleted

Where?

Location of changed data

What?

Data itself



BST

- BSTNode Class Implementation
- BSTInterface Operations
- BinarySearchTree Manipulation

The figure displays four screenshots of a financial application interface, FinEasy, illustrating the use of a Binary Search Tree (BST) for data manipulation and search operations.

Screenshot 1: Shows a general search results page. The search bar contains "Search By: Type/Category/Comment". The table lists 10 transactions with columns: ID, Type, Category, Date, Amount, and Comment. The transactions include various expenses and incomes across categories like Food, Education, Entertainment, Daily, and Transportation.

ID	Type	Category	Date	Amount	Comment
1	Expense	Food	2024-04-15	50.0	Lunch with friends
2	Income	Education	2024-04-15	1500.0	Monthly salary
3	Expense	Food	2024-04-15	300.0	New headphones
4	Expense	Education	2024-04-15	120.0	Weekly groceries
5	Income	Education	2024-04-15	200.0	Freelance project
6	Expense	Entertainment	2024-04-15	60.0	Cinema tickets
7	Expense	Daily	2024-04-15	400.0	Weekend trip
8	Income	Gift	2024-04-15	250.0	Birthday money
9	Expense	Daily	2024-04-15	100.0	Pharmacy
10	Expense	Transportation	2024-04-15	90.0	Programming books

Screenshot 2: Shows a search results page filtered by "EXPENSE". The search bar contains "EXPENSE". The table lists 10 expense transactions.

ID	Type	Category	Date	Amount	Comment
1	Expense	Food	2024-04-15	50.0	Lunch with friends
3	Expense	Food	2024-04-15	300.0	New headphones
4	Expense	Education	2024-04-15	120.0	Weekly groceries
6	Expense	Entertainment	2024-04-15	60.0	Cinema tickets
7	Expense	Daily	2024-04-15	400.0	Weekend trip
9	Expense	Daily	2024-04-15	100.0	Pharmacy
10	Expense	Transportation	2024-04-15	90.0	Programming books

Screenshot 3: Shows a search results page filtered by "WEEK". The search bar contains "WEEK". The table lists 2 expense transactions from the week.

ID	Type	Category	Date	Amount	Comment
4	Expense	Education	2024-04-15	120.0	Weekly groceries
7	Expense	Daily	2024-04-15	400.0	Weekend trip

Screenshot 4: Shows a search results page filtered by "FOOD". The search bar contains "FOOD". The table lists 2 food expense transactions.

ID	Type	Category	Date	Amount	Comment
1	Expense	Food	2024-04-15	50.0	Lunch with friends
3	Expense	Food	2024-04-15	300.0	New headphones

Sorting

- **SortingService Interface**
- **QuickSort Algorithm**
- **User Interface Integration**
- **ObservableList and Type Safety**
- **Testing and Optimization**





Evaluation

- Interface Efficiency
- Robust Operations
- Advanced Sorting
- Optimized Search
- Visual Insights
- User Feedbacks





REFLECTION

- Performance Evaluation
- User Experience Feedback
- Technical Challenges and Solutions
- Code Quality and Maintainability

CONCLUSIONS & FUTURE WORK

- Performance Optimization
- User Experience Improvements

- Algorithm Optimization and Data Structure Improvements
- Iterative Development
- Development of New Features
- Data Auto-Import Feature



References

- [1] Maurer, B. (2015). *How Would You Like to Pay?: How Technology Is Changing the Future of Money*. Duke University Press, Durham, NC.
- [2] Ramadani, L. (2016). Pengaruh penggunaan kartu debit dan uang elektronik (E-Money) terhadap pengeluaran konsumsi mahasiswa. *Jurnal Ekonomi dan Studi Pembangunan*, 8(1), 1-8.
- [3] R. F. Baumeister, “Yielding to Temptation: Self-Control Failure, Impulsive Purchasing, and Consumer Behavior,” Journal of Consumer Research, vol. 28, no. 4, pp. 670–676, 03 2002. [Online]. Available: <https://doi.org/10.1086/338209>

Thank you
very much!

How our system works?

