

bankingapp-with-impexp-stream-stats - bankingapp-with-impexp-stream-stats/src/com/indium/bankingapp/BankingAppMain.java - Eclipse IDE

File Edit Source Refactor Navigate Search Project Run Window Help



Package Explorer ×

bankingapp-with-impexp-stream-stats [indium_javab...

➤ JRE System Library [JavaSE-17]

src
└─ com.indium.bankingapp
 └─ BankingAppMain.java
└─ com.indium.bankingapp.model
 └─ Account.java
└─ com.indium.bankingapp.service
 └─ AccountService.java
 └─ AccountServiceHashMapImpl.java

BankingAppMain.java ×

```
1 package com.indium.bankingapp;  
2  
3 import com.indium.bankingapp.model.Account;  
4 import com.indium.bankingapp.service.AccountService;  
5 import com.indium.bankingapp.service.AccountServiceHashMapImpl;  
6  
7 import java.util.InputMismatchException;  
8 import java.util.Scanner;  
9 import java.util.ArrayList;  
10 import java.util.List;  
11 import java.util.Map;  
12 import java.io.BufferedReader;  
13 import java.io.BufferedWriter;  
14 import java.io.FileReader;  
15 import java.io.FileWriter;  
16 import java.io.IOException;  
17 import java.util.Collection; // Added import for Collectors  
18 import java.util.stream.Collectors; // Added import for Collectors  
19  
20 public class BankingAppMain {  
21     private static AccountService<Account> accountService = createAccountService();  
22     private static Scanner scanner = new Scanner(System.in);  
23  
24     // Defining int variables to keep track of the counts  
25     private static int importCount = 0;  
26     private static int exportCount = 0;  
27
```

Task List ×

Find All Activate...

Outline ×

com.indium.bankingapp
└─ BankingAppMain
 ├── accountService : AccountService
 ├── scanner : Scanner
 ├── importCount : int
 ├── exportCount : int
 ├── main(String[]) : void
 ├── createAccountService() : AccountService
 ├── displayMenu() : void
 └── getUserChoice() : int

bankingapp-with-impexp-stream-stats - bankingapp-with-impexp-stream-stats/src/com/indium/bankingapp/BankingAppMain.java - Eclipse IDE

File Edit Source Refactor Navigate Search Project Run Window Help

Package Explorer ×

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- > JRE System Library [JavaSE-17]
- src
- com.indium.bankingapp
 - BankingAppMain.java
- com.indium.bankingapp.model
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 - AccountService.java
 - AccountServiceHashMapImpl.java

BankingAppMain.java ×

```
28 public static void main(String[] args) {
29     while (true) {
30         displayMenu();
31         int choice = getUserChoice();
32
33         try {
34             switch (choice) {
35                 case 1:
36                     captureAccountDetails();
37                     break;
38                 case 2:
39                     viewAllAccounts();
40                     break;
41                 case 3:
42                     viewAccountDetails();
43                     break;
44                 case 4:
45                     updateAccountDetails();
46                     break;
47                 case 5:
48                     deleteAccount();
49                     break;
50                 case 6:
51                     handlePrintStatisticsMenu();
52                     break;
53                 case 7:
54                     importAccounts();
55                     break;
56                 case 8:
57                     exportAccounts();
58                     break;
59                 case 9:
```

Task List ×

Find | All | Activate...

Outline ×

- com.indium.bankingapp
 - BankingAppMain
 - accountService : AccountService
 - scanner : Scanner
 - importCount : int
 - exportCount : int
 - main(String[]) : void
 - createAccountService() : AccountService
 - displayMenu() : void
 - getUserChoice() : int
 - captureAccountDetails() : void
 - calculateInterestAndUpdateBalance()

bankingapp-with-impexp-stream-stats - bankingapp-with-impexp-stream-stats/src/com/indium/bankingapp/BankingAppMain.java - Eclipse IDE

File Edit Source Refactor Navigate Search Project Run Window Help

Package Explorer ×

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BankingAppMain.java ×

```
59         case y:
60             System.out.println("Exiting the Banking App.");
61             scanner.close();
62             System.exit(0);
63         default:
64             System.out.println("Invalid choice. Please enter a valid option.");
65     }
66 } catch (InputMismatchException e) {
67     System.out.println("Invalid input. Please enter a valid choice.");
68     scanner.nextLine(); // Consume the invalid input
69 } catch (Exception e) {
70     System.err.println("An error occurred: " + e.getMessage());
71 }
72 }
73 }
74
75 private static AccountService<Account> createAccountService() {
76     return new AccountServiceHashMapImpl();
77 }
78
79 private static void displayMenu() {
80     System.out.println("\nBanking App Menu:");
81     System.out.println("1] Add Account");
82     System.out.println("2] View All Accounts");
83     System.out.println("3] View Account");
84     System.out.println("4] Update Account");
85     System.out.println("5] Delete Account");
86     System.out.println("6] Print Statistics");
87     System.out.println("7] Import");
88     System.out.println("8] Export");
89     System.out.println("9] Exit");
90     System.out.print("Enter your choice: ");
91 }
```

Task List ×

Find All Activate...

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bankingapp-with-impexp-stream-stats - bankingapp-with-impexp-stream-stats/src/com/indium/bankingapp/BankingAppMain.java - Eclipse IDE

File Edit Source Refactor Navigate Search Project Run Window Help

Package Explorer ×

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BankingAppMain.java ×

```
92
93=
94 private static synchronized int getUserChoice() {
95     int choice = scanner.nextInt();
96     scanner.nextLine();
97     return choice;
98 }
99=
100 private static synchronized void captureAccountDetails() {
101     try {
102         System.out.print("Enter Account Type (savings/deposit/loan): ");
103         String accountType = scanner.nextLine().toLowerCase();
104
105         if (!isValidAccountType(accountType)) {
106             System.out.println("Invalid account type. Please enter 'savings', 'deposi
107             return;
108         }
109
110         System.out.print("Enter Account ID: ");
111         int id = scanner.nextInt();
112         scanner.nextLine();
113
114         // Validate that ID is positive
115         if (id <= 0) {
116             System.out.println("Invalid account ID. Please enter a positive integer."
117             return;
118         }
119
120         System.out.print("Enter Account Name: ");
121         String name = scanner.nextLine();
122
123         // Validate that the name is not empty
124         if (name.isEmpty()) {
125             System.out.println("Account name cannot be empty.");
```

Task List ×

Find | All | Activate...

Outline ×

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bankingapp-with-impexp-stream-stats - bankingapp-with-impexp-stream-stats/src/com/indium/bankingapp/BankingAppMain.java - Eclipse IDE

File Edit Source Refactor Navigate Search Project Run Window Help

Package Explorer × BankingAppMain.java × Task List ×

bankingapp-with-impexp-stream-stats [indium_javabo
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```
122 // Validate that the name is not empty
123 if (name.isEmpty()) {
124     System.out.println("Account name cannot be empty.");
125     return;
126 }
127
128 System.out.print("Enter Initial Balance: ");
129 double balance = scanner.nextDouble();
130 scanner.nextLine();
131
132 // Validate that the balance is non-negative
133 if (balance < 0) {
134     System.out.println("Initial balance cannot be negative.");
135     return;
136 }
137
138 System.out.print("Enter Rate of Interest (ROI): ");
139 double roi = scanner.nextDouble();
140 scanner.nextLine();
141
142 // Validate that the ROI is non-negative
143 if (roi < 0) {
144     System.out.println("Rate of Interest (ROI) cannot be negative.");
145     return;
146 }
147
148 Account account = new Account(id, name, balance, roi, accountType);
149
150 // Calculate and update the balance with interest
151 calculateInterestAndUpdateBalance(account);
152
153 if (accountService.createAccount(account)) {
```

Line: 123

Find All Activate...

Outline ×

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bankingapp-with-impexp-stream-stats - bankingapp-with-impexp-stream-stats/src/com/indium/bankingapp/BankingAppMain.java - Eclipse IDE

File Edit Source Refactor Navigate Search Project Run Window Help

Package Explorer × BankingAppMain.java × Task List ×

bankingapp-with-impexp-stream-stats [indium_javabo
JRE System Library [JavaSE-17]
src
com.indium.bankingapp
BankingAppMain.java
com.indium.bankingapp.model
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```
152  
153  
154         if (accountService.createAccount(account)) {  
155             System.out.println("Account created successfully.");  
156         } else {  
157             System.out.println("Failed to create an account.");  
158         }  
159     } catch (InputMismatchException e) {  
160         System.out.println("Invalid input. Please enter valid data.");  
161         scanner.nextLine(); // Consume the invalid input  
162     } catch (Exception e) {  
163         System.err.println("An error occurred: " + e.getMessage());  
164     }  
165 }  
166  
167 private static synchronized void calculateInterestAndUpdateBalance(Account account) {  
168     double balance = account.getBalance();  
169     double roi = account.getRoi();  
170     double interest = balance * roi;  
171  
172     // Add interest to the balance  
173     double newBalance = balance + interest;  
174     account.setBalance(newBalance); // Update the balance attribute directly  
175 }  
176  
177 private static boolean isValidAccountType(String accountType) {  
178     return accountType.equals("savings") || accountType.equals("deposit") || accountT  
179 }  
180  
181 private static synchronized void viewAllAccounts() {  
182     List<Account> accounts = new ArrayList<>(accountService.getAllAccounts());  
183  
184     if (!accounts.isEmpty()) {  
185         System.out.println("All Accounts:");  
186     }  
187 }
```

Find All Activate...

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bankingapp-with-impexp-stream-stats - bankingapp-with-impexp-stream-stats/src/com/indium/bankingapp/BankingAppMain.java - Eclipse IDE

File Edit Source Refactor Navigate Search Project Run Window Help

Package Explorer ×

bankingapp-with-impexp-stream-stats [indium.javab
JRE System Library [JavaSE-17]
src
com.indium.bankingapp
BankingAppMain.java
com.indium.bankingapp.model
Account.java
com.indium.bankingapp.service
AccountService.java
AccountServiceHashMapImpl.java

BankingAppMain.java ×

```
182
183
184     if (!accounts.isEmpty()) {
185         System.out.println("All Accounts:");
186         for (Account account : accounts) {
187             System.out.println(account.toString());
188             System.out.println("-----");
189         }
190     } else {
191         System.out.println("No accounts found.");
192     }
193 }
194
195 private static synchronized void viewAccountDetails() {
196     try {
197         System.out.print("Enter Account ID to view: ");
198         int id = scanner.nextInt();
199         scanner.nextLine();
200
201         Account account = accountService.getAccount(id);
202
203         if (account != null) {
204             System.out.println("Account Details:");
205             System.out.println(account.toString());
206         } else {
207             System.out.println("Account not found.");
208         }
209     } catch (InputMismatchException e) {
210         System.out.println("Invalid input. Please enter a valid ID.");
211         scanner.nextLine(); // Consume the invalid input
212     }
213 }
214
215 private static synchronized void updateAccountDetails() {
```

Task List ×

Find All Activate...

Outline ×

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bankingapp-with-impexp-stream-stats - bankingapp-with-impexp-stream-stats/src/com/indium/bankingapp/BankingAppMain.java - Eclipse IDE

File Edit Source Refactor Navigate Search Project Run Window Help

Package Explorer ×

- bankingapp-with-impexp-stream-stats [indium_javabo
- JRE System Library [JavaSE-17]
- src
- com.indium.bankingapp
- BankingAppMain.java
- com.indium.bankingapp.model
- Account.java
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BankingAppMain.java ×

```
214= private static synchronized void updateAccountDetails() {
215     try {
216         System.out.print("Enter Account ID to update: ");
217         int id = scanner.nextInt();
218         scanner.nextLine();
219
220         Account existingAccount = accountService.getAccount(id);
221
222         if (existingAccount != null) {
223             System.out.print("Enter New Account Name: ");
224             String newName = scanner.nextLine();
225             System.out.print("Enter New Account Balance: ");
226             double newBalance = scanner.nextDouble();
227             scanner.nextLine();
228
229             Account updatedAccount = new Account(id, newName, newBalance, exist
230
231             if (accountService.updateAccount(id, updatedAccount)) {
232                 System.out.println("Account updated successfully.");
233             } else {
234                 System.out.println("Failed to update the account.");
235             }
236         } else {
237             System.out.println("Account not found.");
238         }
239     } catch (InputMismatchException e) {
240         System.out.println("Invalid input. Please enter valid data.");
241         scanner.nextLine(); // Consume the invalid input
242     }
243 }
244
245= private static synchronized void deleteAccount() {
```

Task List ×

Find All Activate...

Outline ×

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bankingapp-with-impexp-stream-stats - bankingapp-with-impexp-stream-stats/src/com/indium/bankingapp/BankingAppMain.java - Eclipse IDE

File Edit Source Refactor Navigate Search Project Run Window Help



Package Explorer

bankingapp-with-impexp-stream-stats [indium_javabo
JRE System Library [JavaSE-17]
src
com.indium.bankingapp
BankingAppMain.java
com.indium.bankingapp.model
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AccountServiceHashMapImpl.java

BankingAppMain.java

```
244  
245  
246 private static synchronized void deleteAccount() {  
247     try {  
248         System.out.print("Enter Account ID to delete: ");  
249         int id = scanner.nextInt();  
250         scanner.nextLine();  
251  
252         if (accountService.deleteAccount(id)) {  
253             System.out.println("Account deleted successfully.");  
254         } else {  
255             System.out.println("Failed to delete the account.");  
256         }  
257     } catch (InputMismatchException e) {  
258         System.out.println("Invalid input. Please enter a valid ID.");  
259         scanner.nextLine(); // Consume the invalid input  
260     }  
261 }  
262  
263 private static synchronized void handlePrintStatisticsMenu() {  
264     while (true) {  
265         displayStatisticsMenu();  
266         int choice = getUserChoice();  
267  
268         try {  
269             switch (choice) {  
270                 case 1:  
271                     printAccountsAbove100000();  
272                     break;  
273                 case 2:  
274                     printAccountTypeCounts();  
275                     break;  
276                 case 3:  
277                     printSortedAccountTypeCounts();  
278                     break;  
279             }  
280         } catch (Exception e) {  
281             System.out.println("Error: " + e.getMessage());  
282         }  
283     }  
284 }
```

Task List

Find All Activate...

Outline

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bankingapp-with-impexp-stream-stats - bankingapp-with-impexp-stream-stats/src/com/indium/bankingapp/BankingAppMain.java - Eclipse IDE

File Edit Source Refactor Navigate Search Project Run Window Help

Package Explorer ×

- bankingapp-with-impexp-stream-stats [indium_javabo
- ↳ JRE System Library [JavaSE-17]
- ↳ src
 - ↳ com.indium.bankingapp
 - ↳ BankingAppMain.java
 - ↳ com.indium.bankingapp.model
 - ↳ Account.java
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 - ↳ AccountService.java
 - ↳ AccountServiceHashMapImpl.java

BankingAppMain.java ×

```
274         printAccountTypeCounts();
275         break;
276     case 3:
277         printSortedAccountTypeCounts();
278         break;
279     case 4:
280         printAvgBalanceByAccountType();
281         break;
282     case 5:
283         ListAccountIdsByName();
284         break;
285     case 6:
286         return; // Return to the main menu
287     default:
288         System.out.println("Invalid choice. Please enter a valid option.")
289     }
290 } catch (InputMismatchException e) {
291     System.out.println("Invalid input. Please enter a valid choice.");
292     scanner.nextLine(); // Consume the invalid input
293 }
294 }
295
296 private static void displayStatisticsMenu() {
297     System.out.println("\nStatistics Menu:");
298     System.out.println("1] No of accounts which have balance more than 1 Lac");
299     System.out.println("2] Show no of account by account type");
300     System.out.println("3] Show no of accounts by account type with sorting");
301     System.out.println("4] Show avg balance by account type");
302     System.out.println("5] List account ids whose account name contains given name");
303     System.out.println("6] Back to Main Menu");
304     System.out.print("Enter your choice: ");
305 }
```

Task List ×

Find | All | Activate...

Outline ×

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bankingapp-with-impexp-stream-stats - bankingapp-with-impexp-stream-stats/src/com/indium/bankingapp/BankingAppMain.java - Eclipse IDE

File Edit Source Refactor Navigate Search Project Run Window Help

Package Explorer ×

bankingapp-with-impexp-stream-stats [indium_javabo

src

com.indium.bankingapp

BankingAppMain.java

com.indium.bankingapp.model

Account.java

com.indium.bankingapp.service

AccountService.java

AccountServiceHashMapImpl.java

BankingAppMain.java ×

```
306
307
308 private static void printAccountsAbove100000() {
309     List<Account> accounts = new ArrayList<>(accountService.getAllAccounts());
310     long accountsWithHighBalance = accounts.stream().filter(account -> account.getBal
311     System.out.println("No. of accounts with balance more than 1 Lac: " + accountsWit
312 }
313
314 private static void printAccountTypeCounts() {
315     Map<String, Long> accountTypeCounts = accountService.getAllAccounts().stream()
316     .collect(Collectors.groupingBy(Account::getAccountType, Collectors.counti
317
318     System.out.println("No of accounts by account type:");
319     accountTypeCounts.forEach((accountType, count) -> {
320         System.out.println(accountType + ": " + count);
321     });
322 }
323
324 private static void printSortedAccountTypeCounts() {
325     Map<String, Long> accountTypeCounts = accountService.getAllAccounts().stream()
326     .collect(Collectors.groupingBy(Account::getAccountType, Collectors.counti
327
328     List<Map.Entry<String, Long>> sortedAccountTypeCounts = accountTypeCounts.entrySet()
329     .sorted((entry1, entry2) -> entry2.getValue().compareTo(entry1.getValue()))
330     .collect(Collectors.toList());
331
332     System.out.println("No of accounts by account type (sorted in descending order):"
333     sortedAccountTypeCounts.forEach(entry -> {
334         System.out.println(entry.getKey() + ": " + entry.getValue());
335     });
336 }
337
338 private static void printAvgBalanceByAccountType() {
339     Map<String, Double> avgBalanceByType = accountService.getAllAccounts().stream()
```

Task List ×

Find | All | Activate...

Outline ×

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bankingapp-with-impexp-stream-stats - bankingapp-with-impexp-stream-stats/src/com/indium/bankingapp/BankingAppMain.java - Eclipse IDE

File Edit Source Refactor Navigate Search Project Run Window Help

Package Explorer × BankingAppMain.java ×

bankingapp-with-impexp-stream-stats | indium_javabo
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com.indium.bankingapp
BankingAppMain.java
com.indium.bankingapp.model
Account.java
com.indium.bankingapp.service
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AccountServiceHashMapImpl.java

```
336  
337= private static void printAvgBalanceByAccountType() {  
338     Map<String, Double> avgBalanceByType = accountService.getAllAccounts().stream()  
339     .collect(Collectors.groupingBy(  
340         Account::getAccountType,  
341         Collectors.averagingDouble(Account::getBalance)  
342     ));  
343  
344     System.out.println("Average balance by account type:");  
345     avgBalanceByType.forEach((accountType, avgBalance) -> {  
346         System.out.println(accountType + ": " + avgBalance);  
347     });  
348 }  
349  
350= private static void listAccountIdsByName() {  
351     try {  
352         System.out.print("Enter a name to search for: ");  
353         String searchName = scanner.nextLine().toLowerCase();  
354         List<Account> accounts = new ArrayList<>(accountService.getAllAccounts());  
355  
356         List<String> accountInfoWithName = new ArrayList<>(); // Change to store both  
357  
358         for (Account account : accounts) {  
359             if (account.getName().toLowerCase().contains(searchName)) {  
360                 String accountInfo = "Account ID: " + account.getId() + ", Account Ty  
361                 accountInfoWithName.add(accountInfo);  
362             }  
363         }  
364  
365         if (accountInfoWithName.isEmpty()) {  
366             System.out.println("Account IDs and Types with names containing '" + sear  
367             for (String accountInfo : accountInfoWithName) {  
368                 System.out.println(accountInfo);  
369             }  
370         }  
371     } catch (Exception e) {  
372         e.printStackTrace();  
373     }  
374 }
```

Task List ×

Find All Activate...

Outline ×

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bankingapp-with-impexp-stream-stats - bankingapp-with-impexp-stream-stats/src/com/indium/bankingapp/BankingAppMain.java - Eclipse IDE

File Edit Source Refactor Navigate Search Project Run Window Help

Package Explorer ×

- bankingapp-with-impexp-stream-stats [indium_javabo
- » JRE System Library [JavaSE-17]
- » src
- » com.indium.bankingapp
- » » BankingAppMain.java
- » com.indium.bankingapp.model
- » » Account.java
- » com.indium.bankingapp.service
- » » AccountService.java
- » » AccountServiceHashMapImpl.java

BankingAppMain.java ×

```
365         if (!accountInfoWithName.isEmpty()) {
366             System.out.println("Account IDs and Types with names containing '" + sear
367             for (String accountInfo : accountInfoWithName) {
368                 System.out.println(accountInfo);
369             }
370         } else {
371             System.out.println("No accounts found with names containing '" + searchNa
372         }
373     } catch (Exception e) {
374         System.err.println("An error occurred: " + e.getMessage());
375     }
376 }
377
378 private static synchronized void importAccounts() {
379     try {
380         System.out.print("Enter the path of the file to import from: ");
381         String filePath = scanner.nextLine();
382
383         // Created a thread to perform the import
384         Thread importThread = new Thread(() -> {
385             BufferedReader reader = null;
386             try {
387                 reader = new BufferedReader(new FileReader(filePath));
388                 String line;
389
390                 while ((line = reader.readLine()) != null) {
391                     String[] parts = line.split(",");
392                     if (parts.length == 5) {
393                         int id = Integer.parseInt(parts[0].trim());
394                         String name = parts[1].trim();
395                         double balance = Double.parseDouble(parts[2].trim());
396                         double roi = Double.parseDouble(parts[3].trim());
397                         String type = parts[4].trim();

```

Task List ×

Find All Activate...

Outline ×

- com.indium.bankingapp
- » BankingAppMain
 - » accountService : AccountService
 - » scanner : Scanner
 - » importCount : int
 - » exportCount : int
 - » main(String[]) : void
 - » createAccountService() : AccountService
 - » displayMenu() : void
 - » getUserChoice() : int
 - » captureAccountDetails() : void
 - » calculateInterestAndUpdateBalance()

bankingapp-with-impexp-stream-stats - bankingapp-with-impexp-stream-stats/src/com/indium/bankingapp/BankingAppMain.java - Eclipse IDE

File Edit Source Refactor Navigate Search Project Run Window Help

Package Explorer ×

- bankingapp-with-impexp-stream-stats [indium_javabo
- src
- com.indium.bankingapp
 - BankingAppMain.java
- com.indium.bankingapp.model
 - Account.java
- com.indium.bankingapp.service
 - AccountService.java
 - AccountServiceHashMapImpl.java

BankingAppMain.java ×

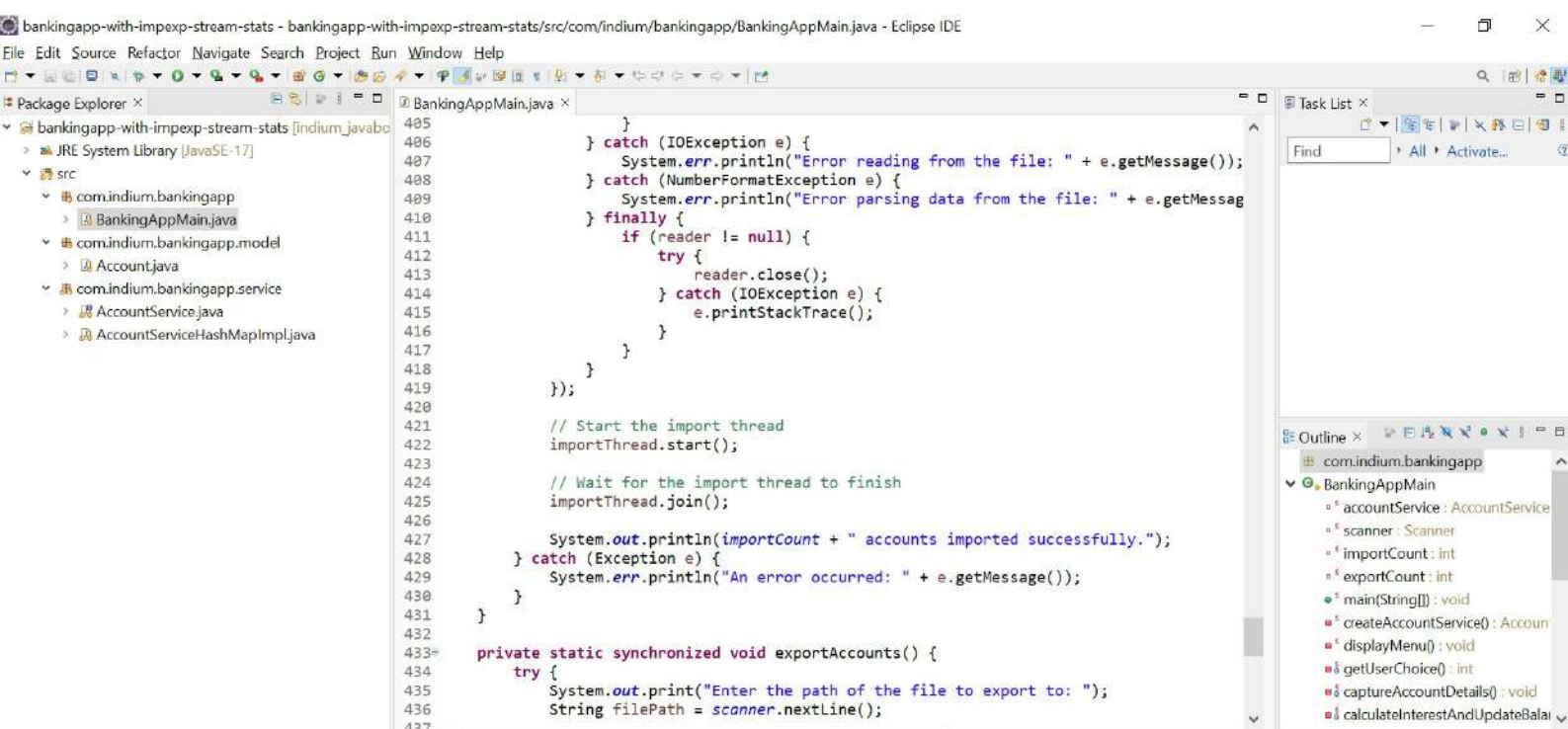
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377
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394                         String name = parts[1].trim();
395                         double balance = Double.parseDouble(parts[2].trim());
396                         double roi = Double.parseDouble(parts[3].trim());
397                         String type = parts[4].trim();
398
399                         Account account = new Account(id, name, balance, roi, type);
400
401                         if (accountService.createAccount(account)) {
402                             importCount++; // Increment the count
403                         }
404                     }
405                 }
406             } catch (IOException e) {
407                 System.err.println("Error reading from the file: " + e.getMessage());
408             } catch (NumberFormatException e) {
```

Task List ×

Find All Activate...

Outline ×

- com.indium.bankingapp
 - BankingAppMain
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 - createAccountService() : AccountService
 - displayMenu() : void
 - getUserChoice() : int
 - captureAccountDetails() : void
 - calculateInterestAndUpdateBalance() : void



bankingapp-with-impexp-stream-stats - bankingapp-with-impexp-stream-stats/src/com/indium/bankingapp/BankingAppMain.java - Eclipse IDE

File Edit Source Refactor Navigate Search Project Run Window Help

Package Explorer

- bankingapp-with-impexp-stream-stats [indium.javab...
- JRE System Library [JavaSE-17]
- src
 - com.indium.bankingapp
 - BankingAppMain.java
 - com.indium.bankingapp.model
 - Account.java
 - com.indium.bankingapp.service
 - AccountService.java
 - AccountServiceImpl.java

BankingAppMain.java

```
449         account.getBalance();
450         account.getAccountType();
451
452         writer.write(line);
453         writer.newLine();
454
455         exportCount++; // Increment the count
456     }
457 } catch (IOException e) {
458     System.err.println("Error writing to the file: " + e.getMessage());
459 } finally {
460     if (writer != null) {
461         try {
462             writer.close();
463         } catch (IOException e) {
464             e.printStackTrace();
465         }
466     }
467 }
468
469 // Start the export thread
470 exportThread.start();
471
472 // Wait for the export thread to finish
473 exportThread.join();
474
475 System.out.println(exportCount + " accounts exported successfully.");
476 } catch (Exception e) {
477     System.err.println("An error occurred: " + e.getMessage());
478 }
479 }
```

Task List

Find

All Activate

Outline

- com.indium.bankingapp
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