

bankingapp-with-jdbc - bankingapp-with-jdbc/src/com/indium/bankingapp/BankingAppMain.java - Eclipse IDE

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Package Explorer ×

> bankingapp-with-jdbc [indium.javabootcamp-batch]

> JRE System Library [JavaSE-17]

> src

> com.indium.bankingapp

> BankingAppMain.java

> com.indium.bankingapp.model

> Account.java

> com.indium.bankingapp.service

> AccountService.java

> AccountServiceMySQLImpl.java

> Referenced Libraries

> lib

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.AccountServiceMySQLImpl;
6
7 import java.util.InputMismatchException;
8 import java.util.Scanner;
9 import java.util.List;
10 import java.util.Map;
11 import java.util.ArrayList;
12 import java.util.Collection;
13 import java.util.Comparator;
14 import java.util.stream.Collectors;
15 import java.io.BufferedReader;
16 import java.io.BufferedWriter;
17 import java.io.FileReader;
18 import java.io.FileWriter;
19 import java.io.IOException;
20 import java.util.stream.Collectors;
21
22 public class BankingAppMain {
23     private static AccountService<Account> accountService = createAccountService();
24     private static Scanner scanner = new Scanner(System.in);
25
26     public static void main(String[] args) {
27         while (true) {
28             displayMenu();
29             int choice = getUserChoice();
30
31             try {
32                 switch (choice) {
```

Task List ×

Find | All | Activate...

Outline ×

- updateAccountDetails() : void
- deleteAccount() : void
- handlePrintStatisticsMenu() : void
- displayStatisticsMenu() : void
- printAccountsAbove1000000() : void
- printAccountTypeCounts() : void
- printSortedAccountTypeCounts() : void
- printAvgBalanceByAccountType() : void
- listAccountIdsByName() : void
- importAccounts() : void
- exportAccounts() : void
- parseAccountFromTXT(String) : void

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JRE System Library [JavaSE-17]

src

com.indium.bankingapp

BankingAppMain.java

com.indium.bankingapp.model

Account.java

com.indium.bankingapp.service

AccountService.java

AccountServiceMySQLImpl.java

Referenced Libraries

lib

BankingAppMain.java ×

```
31    try {
32        switch (choice) {
33            case 1:
34                captureAccountDetails();
35                break;
36            case 2:
37                viewAllAccounts();
38                break;
39            case 3:
40                viewAccountDetails();
41                break;
42            case 4:
43                updateAccountDetails();
44                break;
45            case 5:
46                deleteAccount();
47                break;
48            case 6:
49                handlePrintStatisticsMenu();
50                break;
51            case 7:
52                importAccounts();
53                break;
54            case 8:
55                exportAccounts();
56                break;
57            case 9:
58                System.out.println("Exiting the Banking App.");
59                scanner.close();
60                System.exit(0);
61            default:
62                System.out.println("Invalid choice. Please enter a valid option.")
```

Task List ×

Find

All Activate...

Outline ×

- updateAccountDetails() : void
- deleteAccount() : void
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Referenced Libraries
lib

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

Task List ×

Find All Activate...

Outline ×

- updateAccountDetails() : void
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BankingAppMain.java

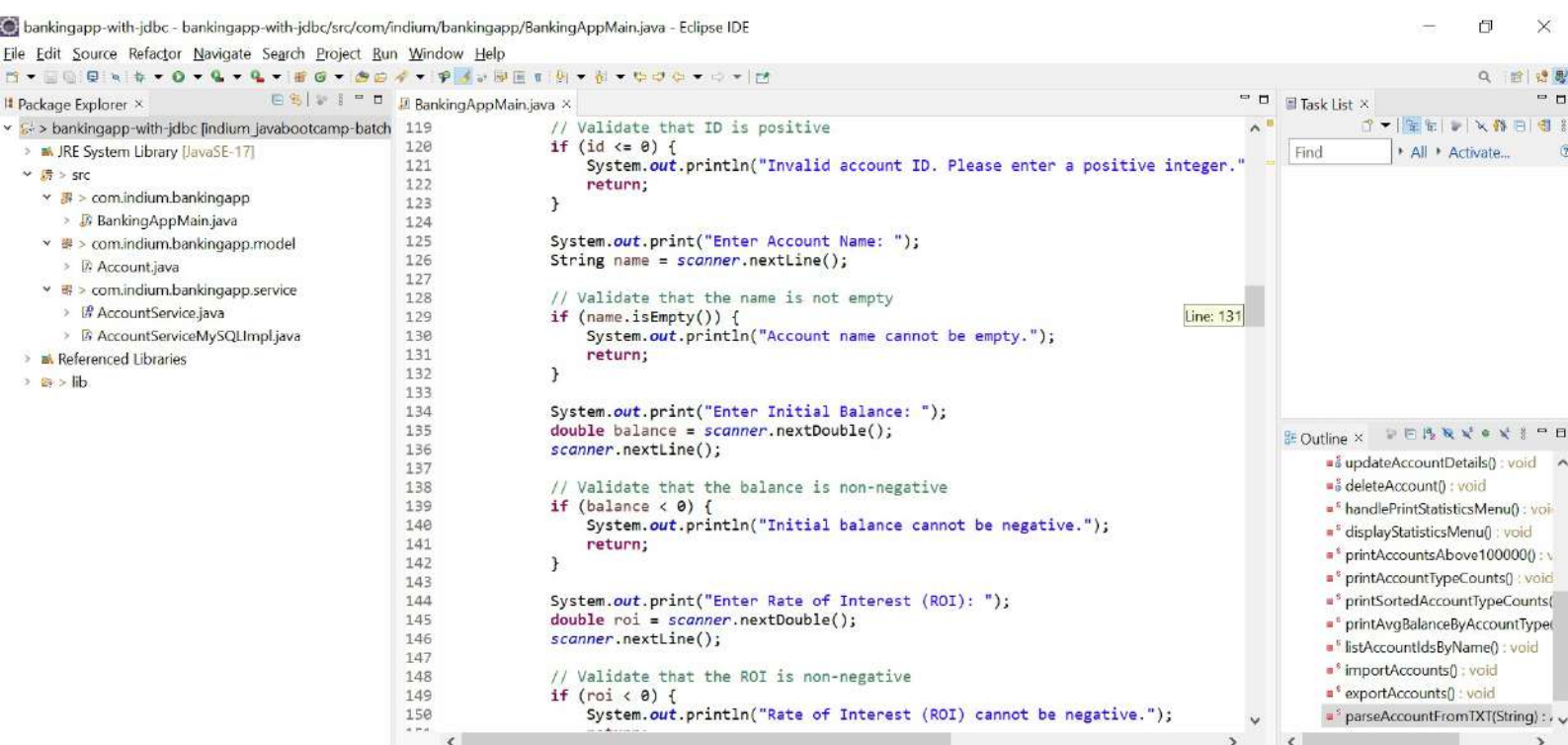
```
90
91 private static int getUserChoice() {
92     int choice;
93     while (true) {
94         try {
95             choice = scanner.nextInt();
96             break; // Break out of the loop if the input is a valid integer
97         } catch (InputMismatchException e) {
98             System.out.println("Invalid input. Please enter a valid choice.");
99             scanner.nextLine(); // Consume the invalid input
100         }
101     }
102     return choice;
103 }
104
105 private static synchronized void captureAccountDetails() {
106     try {
107         System.out.print("Enter Account Type (savings/deposit/loan): ");
108         String accountType = scanner.next().toLowerCase();
109
110         if (!isValidAccountType(accountType)) {
111             System.out.println("Invalid account type. Please enter 'savings', 'deposit', or 'loan'.");
112             return;
113         }
114
115         System.out.print("Enter Account ID: ");
116         int id = scanner.nextInt();
117         scanner.nextLine();
118
119         // Validate that ID is positive
120         if (id <= 0) {
121             System.out.println("Invalid account ID. Please enter a positive integer.");
122             return;
123         }
124     }
125 }
```

Task List

Find All Activate...

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```
148 // Validate that the ROI is non-negative
149 if (roi < 0) {
150     System.out.println("Rate of Interest (ROI) cannot be negative.");
151     return;
152 }
153
154 Account account = new Account(id, name, balance, roi, accountType);
155
156 // Calculate and update the balance with interest
157 calculateInterestAndUpdateBalance(account);
158
159 if (accountService.createAccount(account)) {
160     System.out.println("Account created successfully.");
161 } else {
162     System.out.println("Failed to create an account.");
163 }
164 } catch (InputMismatchException e) {
165     System.out.println("Invalid input. Please enter valid data.");
166     scanner.nextLine(); // Consume the invalid input
167 } catch (Exception e) {
168     System.err.println("An error occurred: " + e.getMessage());
169 }
170 }
171
172 private static synchronized void calculateInterestAndUpdateBalance(Account account) {
173     double balance = account.getBalance();
174     double roi = account.getRoi();
175     double interest = balance * roi;
176
177     // Add interest to the balance
178     double newBalance = balance + interest;
179     account.setBalance(newBalance); // Update the balance attribute directly
```

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```
177 // Add interest to the balance
178 double newBalance = balance + interest;
179 account.setBalance(newBalance); // Update the balance attribute directly
180 }
181
182 private static boolean isValidAccountType(String accountType) {
183     return accountType.equals("savings") || accountType.equals("deposit") || accountT
184 }
185
186 private static synchronized void viewAllAccounts() {
187     List<Account> accounts = new ArrayList<>(accountService.getAllAccounts());
188
189     if (!accounts.isEmpty()) {
190         System.out.println("All Accounts:");
191         for (Account account : accounts) {
192             System.out.println(account.toString());
193             System.out.println("-----");
194         }
195     } else {
196         System.out.println("No accounts found.");
197     }
198 }
199
200 private static synchronized void viewAccountDetails() {
201     try {
202         System.out.print("Enter Account ID to view: ");
203         int id = scanner.nextInt();
204         scanner.nextLine();
205
206         Account account = accountService.getAccount(id);
207
208         if (account != null) {
209             System.out.println("Account Details:");
```

Task List ×

Find All Activate...

Outline ×

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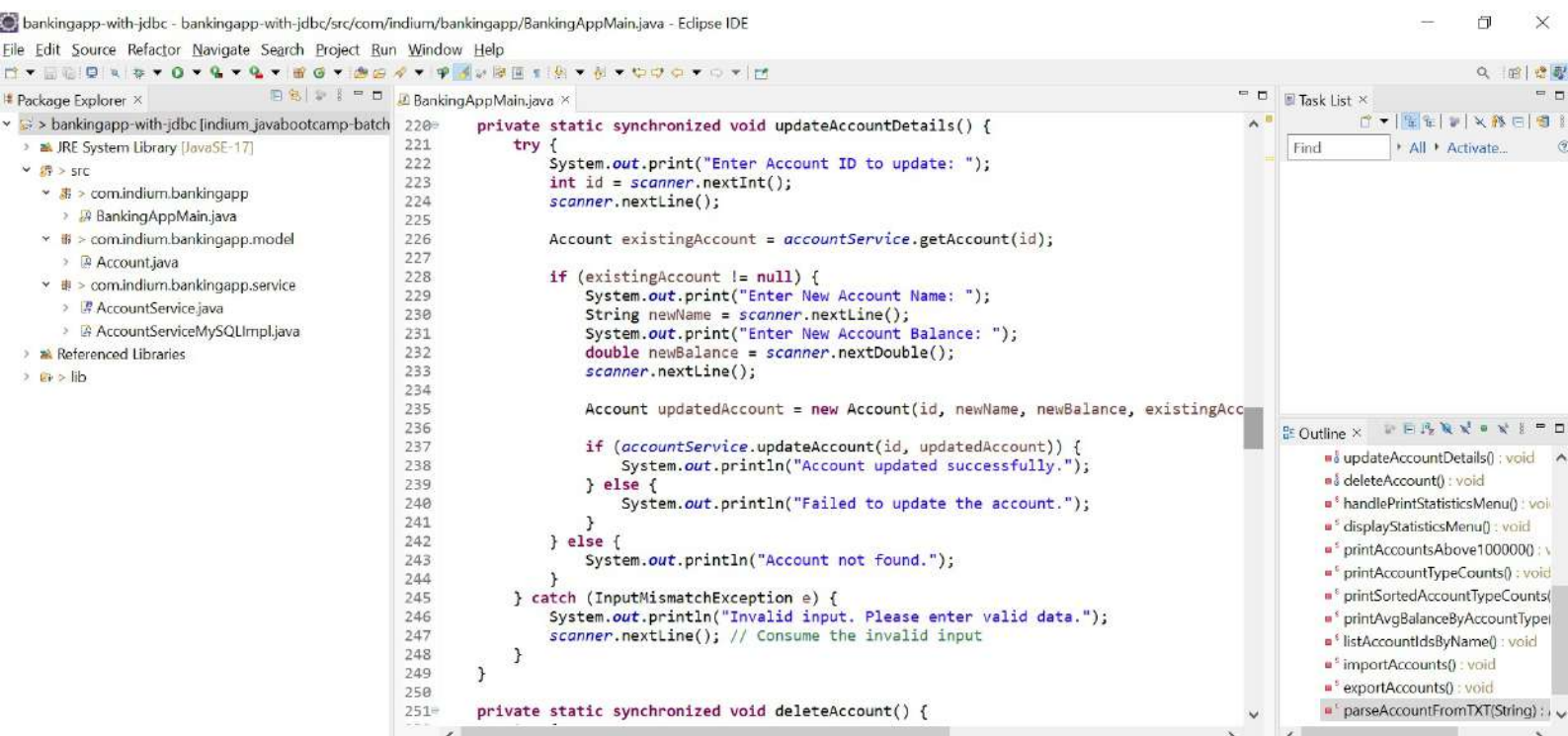
```
200 private static synchronized void viewAccountDetails() {  
201     try {  
202         System.out.print("Enter Account ID to view: ");  
203         int id = scanner.nextInt();  
204         scanner.nextLine();  
205  
206         Account account = accountService.getAccount(id);  
207  
208         if (account != null) {  
209             System.out.println("Account Details:");  
210             System.out.println(account.toString());  
211         } else {  
212             System.out.println("Account not found.");  
213         }  
214     } catch (InputMismatchException e) {  
215         System.out.println("Invalid input. Please enter a valid ID.");  
216         scanner.nextLine(); // Consume the invalid input  
217     }  
218 }  
219  
220 private static synchronized void updateAccountDetails() {  
221     try {  
222         System.out.print("Enter Account ID to update: ");  
223         int id = scanner.nextInt();  
224         scanner.nextLine();  
225  
226         Account existingAccount = accountService.getAccount(id);  
227  
228         if (existingAccount != null) {  
229             System.out.print("Enter New Account Name: ");  
230             String newName = scanner.nextLine();  
231             System.out.print("Enter New Account Balance: ");
```

Task List

Find All Activate...

Outline

- updateAccountDetails() : void
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```
250  
251 private static synchronized void deleteAccount() {  
252     try {  
253         System.out.print("Enter Account ID to delete: ");  
254         int id = scanner.nextInt();  
255         scanner.nextLine();  
256  
257         if (accountService.deleteAccount(id)) {  
258             System.out.println("Account deleted successfully.");  
259         } else {  
260             System.out.println("Failed to delete the account.");  
261         }  
262     } catch (InputMismatchException e) {  
263         System.out.println("Invalid input. Please enter a valid ID.");  
264         scanner.nextLine(); // Consume the invalid input  
265     }  
266 }  
267  
268 private static void handlePrintStatisticsMenu() {  
269     while (true) {  
270         displayStatisticsMenu();  
271         int choice = getUserChoice();  
272  
273         try {  
274             switch (choice) {  
275                 case 1:  
276                     printAccountsAbove100000();  
277                     break;  
278                 case 2:  
279                     printAccountTypeCounts();  
280                     break;  
281                 case 3:  
282                     printSortedAccountTypeCounts();  
283             }  
284         }  
285     }  
286 }
```

Task List ×

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Outline ×

- updateAccountDetails() : void
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 - > lib

BankingAppMain.java ×

```
268 private static void handlePrintStatisticsMenu() {
269     while (true) {
270         displayStatisticsMenu();
271         int choice = getUserChoice();
272
273         try {
274             switch (choice) {
275                 case 1:
276                     printAccountsAbove100000();
277                     break;
278                 case 2:
279                     printAccountTypeCounts();
280                     break;
281                 case 3:
282                     printSortedAccountTypeCounts();
283                     break;
284                 case 4:
285                     printAvgBalanceByAccountType();
286                     break;
287                 case 5:
288                     listAccountIdsByName();
289                     break;
290                 case 6:
291                     return; // Return to the main menu
292                 default:
293                     System.out.println("Invalid choice. Please enter a valid option.");
294             }
295         } catch (InputMismatchException e) {
296             System.out.println("Invalid input. Please enter a valid choice.");
297             scanner.nextLine(); // Consume the invalid input
298         }
299     }
300 }
```

Task List ×

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Outline ×

 - updateAccountDetails() : void
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BankingAppMain.java ×

```
301
302= private static void displayStatisticsMenu() {
303     System.out.println("\nStatistics Menu:");
304     System.out.println("1] No of accounts which have balance more than 1 Lac");
305     System.out.println("2] Show no of account by account type");
306     System.out.println("3] Show no of accounts by account type with sorting");
307     System.out.println("4] Show avg balance by account type");
308     System.out.println("5] List account IDs whose account name contains a given name"
309     System.out.println("6] Back to Main Menu");
310     System.out.print("Enter your choice: ");
311 }
312
313= private static void printAccountsAbove100000() {
314     List<Account> accounts = accountService.getAllAccounts();
315     long count = accounts.stream()
316         .filter(account -> account.getBalance() > 100000)
317         .count();
318     System.out.println("Number of accounts with balance more than 1 Lac: " + count);
319 }
320
321= private static void printAccountTypeCounts() {
322     List<Account> accounts = accountService.getAllAccounts();
323     Map<String, Long> countByAccountType = accounts.stream()
324         .collect(Collectors.groupingBy(Account::getAccountType, Collectors.counting()));
325
326     for (Map.Entry<String, Long> entry : countByAccountType.entrySet()) {
327         System.out.println("Account Type: " + entry.getKey() + ", Count: " + entry.getValue());
328     }
329 }
330
331= private static void printSortedAccountTypeCounts() {
332     List<Account> accounts = accountService.getAllAccounts();
333     Map<String, Long> countByAccountType = accounts.stream()
```

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BankingAppMain.java ×

```
331 private static void printSortedAccountTypeCounts() {  
332     List<Account> accounts = accountService.getAllAccounts();  
333     Map<String, Long> countByAccountType = accounts.stream()  
334         .collect(Collectors.groupingBy(Account::getAccountType, Collectors.counting()));  
335  
336     countByAccountType.entrySet().stream()  
337         .sorted(Map.Entry.comparingByValue(Comparator.reverseOrder()))  
338         .forEach(entry -> {  
339             System.out.println("Account Type: " + entry.getKey() + ", Count: " + entry.getValue());  
340         });  
341 }  
342  
343 private static void printAvgBalanceByAccountType() {  
344     List<Account> accounts = accountService.getAllAccounts();  
345     Map<String, Double> avgBalanceByAccountType = accounts.stream()  
346         .collect(Collectors.groupingBy(Account::getAccountType, Collectors.averagingDouble()));  
347  
348     for (Map.Entry<String, Double> entry : avgBalanceByAccountType.entrySet()) {  
349         System.out.println("Account Type: " + entry.getKey() + ", Avg Balance: " + entry.getValue());  
350     }  
351 }  
352  
353 private static void listAccountIdsByName() {  
354     System.out.print("Enter a name to search for in account names: ");  
355     scanner.nextLine(); // Consume the newline character from the previous input  
356     String searchName = scanner.nextLine().trim().toLowerCase();  
357  
358     if (searchName.isEmpty()) {  
359         System.out.println("Search name cannot be empty.");  
360         return;  
361     }  
362 }
```

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```
362  
363     List<Account> accounts = accountService.getAllAccounts();  
364     List<Integer> accountIds = new ArrayList<>();  
365  
366     for (Account account : accounts) {  
367         String accountName = account.getName().trim().toLowerCase();  
368         if (accountName.contains(searchName)) {  
369             accountIds.add(account.getId());  
370         }  
371     }  
372  
373     if (!accountIds.isEmpty()) {  
374         System.out.println("Account IDs with names containing '" + searchName + "': "  
375     } else {  
376         System.out.println("No accounts found with names containing '" + searchName + "  
377     }  
378 }  
379  
380 private static void importAccounts() {  
381     try {  
382         System.out.print("Enter the path of the file to import from: ");  
383         String filePath = scanner.next();  
384         scanner.nextLine(); // Consume the newline character  
385  
386         BufferedReader reader = new BufferedReader(new FileReader(filePath));  
387         String line;  
388         int importCount = 0;  
389  
390         while ((line = reader.readLine()) != null) {  
391             // Parse the line and create an Account object  
392             Account account = parseAccountFromTXT(line);  
393  
394             if (account != null) {  
395                 // Add the account to the list  
396                 accounts.add(account);  
397                 importCount++;  
398             }  
399         }  
400         System.out.println("Imported " + importCount + " accounts successfully.");  
401     } catch (IOException e) {  
402         System.out.println("Error importing accounts: " + e.getMessage());  
403     }  
404 }
```

Task List x

Find All Activate...

Outline x

- updateAccountDetails() : void
- deleteAccount() : void
- handlePrintStatisticsMenu() : void
- displayStatisticsMenu() : void
- printAccountsAbove1000000() : void
- printAccountTypeCounts() : void
- printSortedAccountTypeCounts() : void
- printAvgBalanceByAccountType() : void
- listAccountIdsByName() : void
- importAccounts() : void
- exportAccounts() : void
- parseAccountFromTXT(String) : Account

bankingapp-with-jdbc - bankingapp-with-jdbc/src/com/indium/bankingapp/BankingAppMain.java - Eclipse IDE

File Edit Source Refactor Navigate Search Project Run Window Help

Package Explorer

bankingapp-with-jdbc [indium.javabootcamp-batch]
JRE System Library [JavaSE-17]
src
com.indium.bankingapp
BankingAppMain.java
com.indium.bankingapp.model
Account.java
com.indium.bankingapp.service
AccountService.java
AccountServiceMySQLImpl.java
Referenced Libraries
lib

BankingAppMain.java

```
390 while ((line = reader.readLine()) != null) {  
391     // Parse the line and create an Account object  
392     Account account = parseAccountFromTXT(line);  
393  
394     if (account != null) {  
395         // Check if an account with the same ID already exists  
396         if (accountService.getAccount(account.getId()) != null) {  
397             System.out.println("Account with ID " + account.getId() + " already exists");  
398         } else {  
399             if (accountService.createAccount(account)) {  
400                 importCount++; // Increment the count of successfully imported accounts  
401             } else {  
402                 System.out.println("Failed to import account with ID " + account.getId());  
403             }  
404         }  
405     }  
406 }  
407  
408 reader.close();  
409 System.out.println(importCount + " accounts imported successfully.");  
410 } catch (IOException e) {  
411     System.err.println("An error occurred during import: " + e.getMessage());  
412 }  
413 }  
414 private static void exportAccounts() {  
415     try {  
416         System.out.print("Enter the path of the file to export to: ");  
417         String filePath = scanner.next();  
418         scanner.nextLine(); // Consume the newline character  
419  
420         BufferedWriter writer = new BufferedWriter(new FileWriter(filePath));  
421         Collection<Account> accounts = accountService.getAllAccounts();  
422     } catch (IOException e) {  
423         System.err.println("An error occurred during export: " + e.getMessage());  
424     }  
425 }
```

Task List

Find All Activate...

Outline

- updateAccountDetails() : void
- deleteAccount() : void
- handlePrintStatisticsMenu() : void
- displayStatisticsMenu() : void
- printAccountsAbove100000() : void
- printAccountTypeCounts() : void
- printSortedAccountTypeCounts() : void
- printAvgBalanceByAccountType() : void
- listAccountIdsByName() : void
- importAccounts() : void
- exportAccounts() : void
- parseAccountFromTXT(String) : Account

bankingapp-with-jdbc - bankingapp-with-jdbc/src/com/indium/bankingapp/BankingAppMain.java - Eclipse IDE

File Edit Source Refactor Navigate Search Project Run Window Help

Package Explorer × BankingAppMain.java ×

bankingapp-with-jdbc [indium.javabootcamp-batch]
JRE System Library [JavaSE-17]
src
com.indium.bankingapp
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com.indium.bankingapp.service
AccountService.java
AccountServiceMySQLImpl.java
Referenced Libraries
lib

```
424 // write account data to the txt file
425 for (Account account : accounts) {
426     String line = createTXTLineFromAccount(account);
427     writer.write(line);
428     writer.newLine();
429 }
430 writer.close();
431 System.out.println(accounts.size() + " accounts exported successfully.");
432 } catch (IOException e) {
433     System.err.println("An error occurred during export: " + e.getMessage());
434 }
435 }
436
437 private static Account parseAccountFromTXT(String line) {
438     String[] parts = line.split(";"); // delimiter
439     if (parts.length == 5) {
440         int id = Integer.parseInt(parts[0].trim());
441         String name = parts[1].trim();
442         double balance = Double.parseDouble(parts[2].trim());
443         double roi = Double.parseDouble(parts[3].trim());
444         String type = parts[4].trim();
445         return new Account(id, name, balance, roi, type);
446     }
447     return null;
448 }
449
450 private static String createTXTLineFromAccount(Account account) {
451     return account.getId() + ";" + account.getName() + ";" +
452         account.getBalance() + ";" + account.getRoi() + ";" +
453         account.getAccountType();
454 }
455 }
```

Task List ×

Find All Activate...

Outline ×

- updateAccountDetails() : void
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- parseAccountFromTXT(String) : void