

Lab Exercise on Threads and Exception Handling (2024)

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Exercise 1: Bank Application with Custom Exceptions

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C:\Users\Lenovo\Downloads\WorkSheet_8\Lab_8\BankApplication>javac *.java

C:\Users\Lenovo\Downloads\WorkSheet_8\Lab_8\BankApplication>java Bankdemo
Error: Could not find or load main class Bankdemo
Caused by: java.lang.NoClassDefFoundError: BankDemo (wrong name: Bankdemo)

C:\Users\Lenovo\Downloads\WorkSheet_8\Lab_8\BankApplication>java BankDemo
Welcome to the Bank Application
Account Number: 12345
Current Balance: $1000.0
Choose transaction: 1 - Withdraw, 2 - Deposit
1
Enter withdrawal amount: $5000
Error: Insufficient balance. You tried to withdraw $5000.0, but only $1000.0 is available.
Account Number: 12345
Current Balance: $1000.0

C:\Users\Lenovo\Downloads\WorkSheet_8\Lab_8\BankApplication>java BankDemo
Welcome to the Bank Application
Account Number: 12345
Current Balance: $1000.0
Choose transaction: 1 - Withdraw, 2 - Deposit
2
Enter deposit amount: $500
Deposited: $500.0
Account Number: 12345
Current Balance: $1500.0

C:\Users\Lenovo\Downloads\WorkSheet_8\Lab_8\BankApplication>java BankDemo
Welcome to the Bank Application
Account Number: 12345
Current Balance: $1000.0
Choose transaction: 1 - Withdraw, 2 - Deposit
1
Enter withdrawal amount: $1000
Withdrawn: $1000.0
Account Number: 12345
Current Balance: $0.0

C:\Users\Lenovo\Downloads\WorkSheet_8\Lab_8\BankApplication>
```

Exercise 2: Extending Bank Application with Loops and Finally Block

```
Error: Could not find or load main class Bankdemo
Caused by: java.lang.NoClassDefFoundError: BankDemo (wrong name: Bankdemo)

C:\Users\Lenovo\Downloads\WorkSheet_8\Lab_8\ExtendBankApplication>java BankDemo
Welcome to the Bank Application
Account Number: 12345
Current Balance: $1000.0

Choose transaction: 1 - Withdraw, 2 - Deposit
1
Enter withdrawal amount: $3000
Error: Insufficient balance. You tried to withdraw $3000.0, but only $1000.0 is available.
Account Number: 12345
Current Balance: $1000.0
Do you wish to continue? (yes/no): yes
Account Number: 12345
Current Balance: $1000.0

Choose transaction: 1 - Withdraw, 2 - Deposit
1
Enter withdrawal amount: $600
Withdrawn: $600.0
Account Number: 12345
Current Balance: $400.0
Do you wish to continue? (yes/no): yes
Deposited: $600.0
Amount redeposited for retry.
Account Number: 12345
Current Balance: $1000.0

Choose transaction: 1 - Withdraw, 2 - Deposit
1
Enter withdrawal amount: $2000
Error: Insufficient balance. You tried to withdraw $2000.0, but only $1000.0 is available.
Account Number: 12345
Current Balance: $1000.0
Do you wish to continue? (yes/no): no
Thank you for using our service!

C:\Users\Lenovo\Downloads\WorkSheet_8\Lab_8\ExtendBankApplication>java BankDemo
Welcome to the Bank Application
Account Number: 12345
Current Balance: $1000.0

Choose transaction: 1 - Withdraw, 2 - Deposit
2
Enter deposit amount: $2000
Deposited: $2000.0
Account Number: 12345
Current Balance: $3000.0
Do you wish to continue? (yes/no): |
```

Exercise 3: Multithreading with Bank Accounts

```
C:\Users\Lenovo\Downloads\WorkSheet_8\Lab_8>cd BankApplicationThreads

C:\Users\Lenovo\Downloads\WorkSheet_8\Lab_8\BankApplicationThreads>javac *.java

C:\Users\Lenovo\Downloads\WorkSheet_8\Lab_8\BankApplicationThreads>java BankDemo
Starting multithreaded transactions...

[User-1] Starting transaction...
[User-1] Attempting to withdraw $199.0
Withdrawn: $199.00
Account Number: 12345
Current Balance: $801.00
[User-1] Transaction completed.

[User-3] Starting transaction...
[User-3] Attempting to withdraw $79.0
Withdrawn: $79.00
Account Number: 12345
Current Balance: $722.00
[User-3] Transaction completed.

[User-2] Starting transaction...
[User-2] Attempting to withdraw $56.0
Withdrawn: $56.00
Account Number: 12345
Current Balance: $666.00
[User-2] Transaction completed.

Final Balance After All Transactions:
Account Number: 12345
Current Balance: $666.00

C:\Users\Lenovo\Downloads\WorkSheet_8\Lab_8\BankApplicationThreads>|
```

Exercise 4: Joint Account with Multiple Users

```
C:\Users\Lenovo\Downloads\WorkSheet_8\Lab_8>cd JointBankApplication

C:\Users\Lenovo\Downloads\WorkSheet_8\Lab_8\JointBankApplication>javac *.java

C:\Users\Lenovo\Downloads\WorkSheet_8\Lab_8\JointBankApplication>java BankDemo
Error: Could not find or load main class BankDemo
Caused by: java.lang.ClassNotFoundException: BankDemo

C:\Users\Lenovo\Downloads\WorkSheet_8\Lab_8\JointBankApplication>java JointAccountDemo
[User-1] Deposited: $32.57 | New Balance: $1032.57
[User-3] Withdrawn: $15.59 | New Balance: $1016.98
[User-2] Withdrawn: $25.90 | New Balance: $991.07
[User-2] Deposited: $23.68 | New Balance: $1014.75
[User-2] Deposited: $27.35 | New Balance: $1042.09
[User-2] Withdrawn: $15.76 | New Balance: $1026.34
[User-1] Deposited: $16.23 | New Balance: $1042.57
[User-1] Withdrawn: $24.45 | New Balance: $1018.12
[User-1] Deposited: $6.80 | New Balance: $1024.92
[User-3] Withdrawn: $99.54 | New Balance: $925.38
[User-2] Deposited: $79.42 | New Balance: $1004.80
[User-1] Withdrawn: $56.80 | New Balance: $947.99
[User-3] Deposited: $51.11 | New Balance: $999.11
[User-3] Withdrawn: $35.26 | New Balance: $963.85
[User-3] Withdrawn: $53.21 | New Balance: $910.64

Final Balance in Joint Account: $910.64

C:\Users\Lenovo\Downloads\WorkSheet_8\Lab_8\JointBankApplication>|
```