

Activity - 2

Create a class account that maintains acc_no, name, and balance. Perform deposit, withdrawal and statement print operations.

Use subclasses loan account, credit card, and its relevant variables, functions related to it.

The class must be able to throw a INSUFFICIENT FUND exception when a user is trying to withdraw a amount less the minimum balance.

Over-view of Assignment-2

```

1  package lab.assignments;
2
3  @
4  class Account {
5      String acc_no;
6      String name;
7      int balance;
8      int salary;
9
10     Account(String user_acc_no, String user_name, int user_balance) {...5 lines }
11
12
13
14
15     void Statement() {...6 lines }
16
17
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21
22         // Defining a user defined exception
23     void Deposit_negative(int amount) throws Exception {...8 lines }
24
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32     void Deposit(int amount) {...8 lines }
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40
41         // Defining a user defined exception
42     void Withdraw_insufficient(int amount) throws Exception {...8 lines }
43
44
45
46
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50
51     void Withdraw(int amount) {...8 lines }
52
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58
59 }
60
61
62 class Loan extends Account {
63     int loan_user_salary, loan_user_amount;
64
65     Loan(String user_acc_no, String user_name, int user_balance, int user_salary, int loan_amount) {...5 lines }
66
67
68
69
70
71     void Loan_Exception() throws Exception {...8 lines }
72
73
74
75
76
77
78
79
80     void Loan() {...8 lines }
81
82
83
84
85
86
87
88 }
89
90 class Credit_card extends Account {
91     int credit_user_salary, credit_user_amount;
92
93     Credit_card(String user_acc_no, String user_name, int user_balance, int user_salary, int loan_amount) {...5 lines }
94
95
96
97
98
99     void Credit_Swipe_Exception() throws Exception {...8 lines }
100
101
102
103
104
105
106
107
108     void Credit_Swipe() {...9 lines }
109
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113
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115
116
117 }
118
119 public class Assignment_2 {
120     public static void main(String args[]) {...24 lines }
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```

Account class

```
class Account {
    String acc_no;
    String name;
    int balance;
    int salary;

    Account(String user_acc_no, String user_name, int user_balance) { // general details for opening a bank account
        this.acc_no = user_acc_no;
        this.name = user_name;
        this.balance = user_balance;
    }

    void Statement() {...6 lines }
    // Defining a user defined exception
    void Deposit_negative(int amount) throws Exception {
        if (amount < 0) { // amount should not be -ve
            throw new Exception ("Amount cannot be negative");
        }
    }
    else {
        this.balance = this.balance + amount;
    }
}

void Deposit(int amount) {
    try {
        Deposit_negative(amount);
    }
    catch (Exception obj) {
        System.out.println("Exception from Deposit_negative : " + obj);
    }
}

// Defining a user defined exception
void Withdraw_insufficient(int amount) throws Exception {
    if ( (amount < this.balance) && ((this.balance - amount) < 5000)) {
        throw new Exception ("In-sufficient balance");
    }
    else {
        this.balance = this.balance - amount;
    }
}

void Withdraw(int amount) {
    try {
        Withdraw_insufficient(amount);
    }
    catch (Exception obj){
        System.out.println("Exception from Withdraw_insufficient" + obj);
    }
}
}
```

Loan class

```
62 class Loan extends Account {
63     int loan_user_salary, loan_user_amount;
64
65     Loan(String user_acc_no, String user_name, int user_balance, int user_salary, int loan_amount) {
66         super(user_acc_no, user_name, user_balance);
67         this.loan_user_salary = user_salary;
68         this.loan_user_amount = loan_amount;
69     }
70
71     void Loan_Exception() throws Exception {
72         if ( (this.loan_user_amount) > (this.loan_user_salary + ((0.75)*this.loan_user_salary)) ) {
73             throw new Exception("You Loan request is not accepted");
74         }
75     }
76
77     void Loan_amount() {
78         try {
79             if ( (this.loan_user_amount) <= (this.loan_user_salary + ((0.75)*this.loan_user_salary)) ) {
80                 System.out.println("SUCCESS --> You Loan request is accepted");
81             }
82             else {
83                 Loan_Exception();
84             }
85         }
86         catch(Exception obj) {
87             System.out.println("EXCEPTION : " + obj);
88         }
89     }
90 }
```

Credit card class

```
92  class Credit_card extends Account {
93      int credit_user_salary , credit_user_amount;
94
95      Credit_card(String user_acc_no, String user_name, int user_balance, int user_salary, int credit_amount) {
96          super(user_acc_no, user_name, user_balance);
97          this.credit_user_salary = user_salary;
98          this.credit_user_amount = credit_amount;
99      }
100
101      void Credit_Swipe_Exception() throws Exception {
102          if ( (this.credit_user_amount) > (this.credit_user_salary + ((0.25)*this.credit_user_salary)) ) {
103              throw new Exception("You cannot swipe your quoted amount");
104          }
105      }
106
107      void Credit_Swipe() {
108          try {
109              if ( (this.credit_user_amount) <= (this.credit_user_salary + ((0.25)*this.credit_user_salary)) ) {
110                  System.out.println("SUCCESS --> You can swipe your quoted amount");
111              }
112              else {
113                  Credit_Swipe_Exception();
114              }
115          }
116
117          catch(Exception obj) {
118              System.out.println("EXCEPTION : " + obj);
119          }
120      }
121  }
122
```

Main method

```
119 public class Assignment_2 {
120     public static void main(String args[]) {
121
122         // getting details from the user to open a bank account
123         Account obj1 = new Account("19MID1000", "GilChrist", 5000);
124         obj1.Deposit(1000);
125         obj1.Withdraw(3000);
126
127         // generating a statement
128         obj1.Statement();
129
130         // getting details from the user to apply for a loan
131         Loan obj2 = new Loan("19MID0020", "Prashanth", 50_000, 1_00_000, 1_75_000);
132         obj2.Loan();
133
134         // generating a statement
135         obj2.Statement();
136
137         // getting details from the user to swipe the credit card
138         Credit_card obj3 = new Credit_card("19MID0017", "Mothish", 50_000, 1_00_000, 1_25_000);
139         obj3.Credit_Swipe();
140
141         // generating a statement
142         obj3.Statement();
143     }
144 }
```

Depositing and Withdrawing Procedures

Depositing negative amount

```
122 // getting details from the user to open a bank account
123 Account obj1 = new Account("19MID1000", "GilChrist", 10000);
125 obj1.Deposit(-1000);
126 obj1.Withdraw(3000);
127
128 // generating a statement
129 obj1.Statement();
130 /*
```

Output

WinterSemester-2021 - C:\WinterSemester-2021 x Debugger Console x Lab_Assignments (run-single) x

```
init:
Deleting: C:\WinterSemester-2021\CSI2008 Programming in JAVA\JAVA lab practice\Lab Assignments\build\build-jar.properties
deps-jar:
Updating property file: C:\WinterSemester-2021\CSI2008 Programming in JAVA\JAVA lab practice\Lab Assignments\build\build-jar.properties
Compiling 1 source file to C:\WinterSemester-2021\CSI2008 Programming in JAVA\JAVA lab practice\Lab Assignments\build\classes
compile-single:
run-single:
Exception from Deposit_negative : java.lang.Exception: Amount cannot be negative
Your Bank details
Account no : 19MID1000
User Name : GilChrist
Balance : 7000
BUILD SUCCESSFUL (total time: 1 second)
```

Withdrawing amount which is greater than minimum balance

```
122 // getting details from the user to open a bank account
123 Account obj1 = new Account("19MID1000", "GilChrist", 10000);
124 obj1.Deposit(1000);
125 obj1.Withdraw(7000);
126
127 // generating a statement
128 obj1.Statement();
129 /*
```

Output

WinterSemester-2021 - C:\WinterSemester-2021 × Debugger Console × Lab_Assignments (run-single) ×

```
init:
Deleting: C:\WinterSemester-2021\CSI2008 Programming in JAVA\JAVA lab practice\Lab Assignments\build\build-jar.properties
deps-jar:
Updating property file: C:\WinterSemester-2021\CSI2008 Programming in JAVA\JAVA lab practice\Lab Assignments\build\build-jar.properties
Compiling 1 source file to C:\WinterSemester-2021\CSI2008 Programming in JAVA\JAVA lab practice\Lab Assignments\build\classes
compile-single:
run-single:
Exception from Withdraw_insufficientjava.lang.Exception: In-sufficient balance
Your Bank details
Account no : 19MID1000
User Name : GilChrist
Balance : 11000
BUILD SUCCESSFUL (total time: 1 second)
```

With the above two exception

```
123 Account obj1 = new Account("19MID1000", "GilChrist", 10000);
124 obj1.Deposit(-1000);
125 obj1.Withdraw(7000);
126
127 // generating a statement
128 obj1.Statement();
129 /*
```

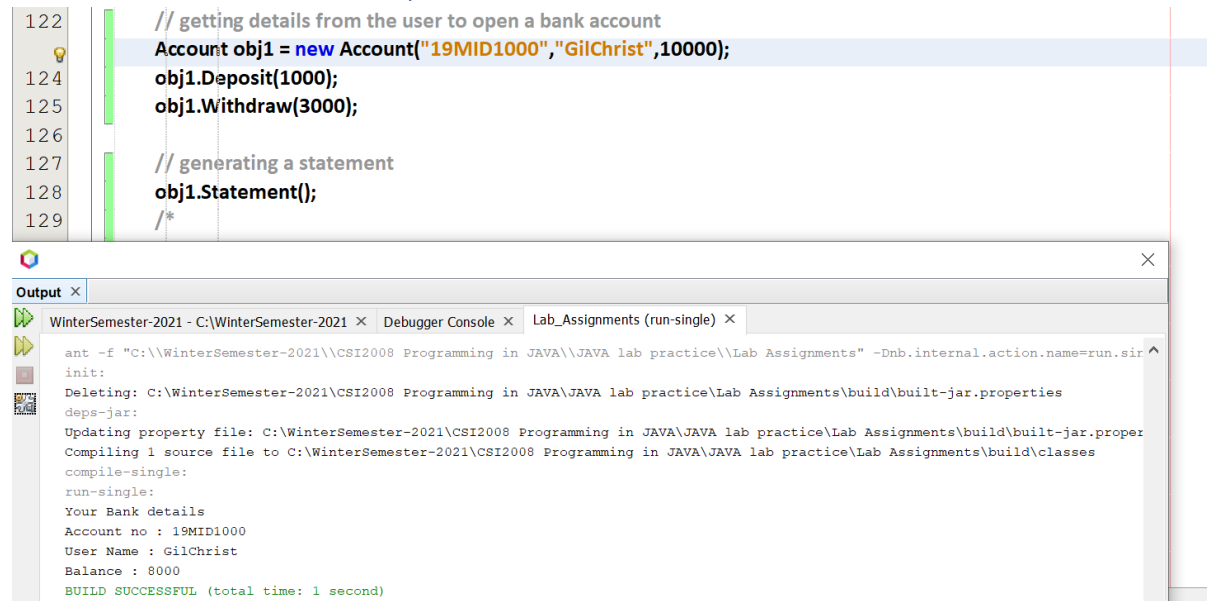
Output

WinterSemester-2021 - C:\WinterSemester-2021 × Debugger Console × Lab_Assignments (run-single) ×

```
Deleting: C:\WinterSemester-2021\CSI2008 Programming in JAVA\JAVA lab practice\Lab Assignments\build\build-jar.properties
deps-jar:
Updating property file: C:\WinterSemester-2021\CSI2008 Programming in JAVA\JAVA lab practice\Lab Assignments\build\build-jar.properties
Compiling 1 source file to C:\WinterSemester-2021\CSI2008 Programming in JAVA\JAVA lab practice\Lab Assignments\build\classes
compile-single:
run-single:
Exception from Deposit_negative : java.lang.Exception: Amount cannot be negative
Exception from Withdraw_insufficientjava.lang.Exception: In-sufficient balance
Your Bank details
Account no : 19MID1000
User Name : GilChrist
Balance : 10000
BUILD SUCCESSFUL (total time: 0 seconds)
```

Without the above two exception

```
122 // getting details from the user to open a bank account
123 Account obj1 = new Account("19MID1000", "GilChrist", 10000);
124 obj1.Deposit(1000);
125 obj1.Withdraw(3000);
126
127 // generating a statement
128 obj1.Statement();
129 /*
```



Output

```
WinterSemester-2021 - C:\WinterSemester-2021 x Debugger Console x Lab_Assignments (run-single) x
ant -f "C:\WinterSemester-2021\CSI2008 Programming in JAVA\JAVA lab practice\Lab Assignments" -Dnb.internal.action.name=run.sir
init:
Deleting: C:\WinterSemester-2021\CSI2008 Programming in JAVA\JAVA lab practice\Lab Assignments\build\build-jar.properties
deps-jar:
Updating property file: C:\WinterSemester-2021\CSI2008 Programming in JAVA\JAVA lab practice\Lab Assignments\build\build-jar.properties
Compiling 1 source file to C:\WinterSemester-2021\CSI2008 Programming in JAVA\JAVA lab practice\Lab Assignments\build\classes
compile-single:
run-single:
Your Bank details
Account no : 19MID1000
User Name : GilChrist
Balance : 8000
BUILD SUCCESSFUL (total time: 1 second)
```

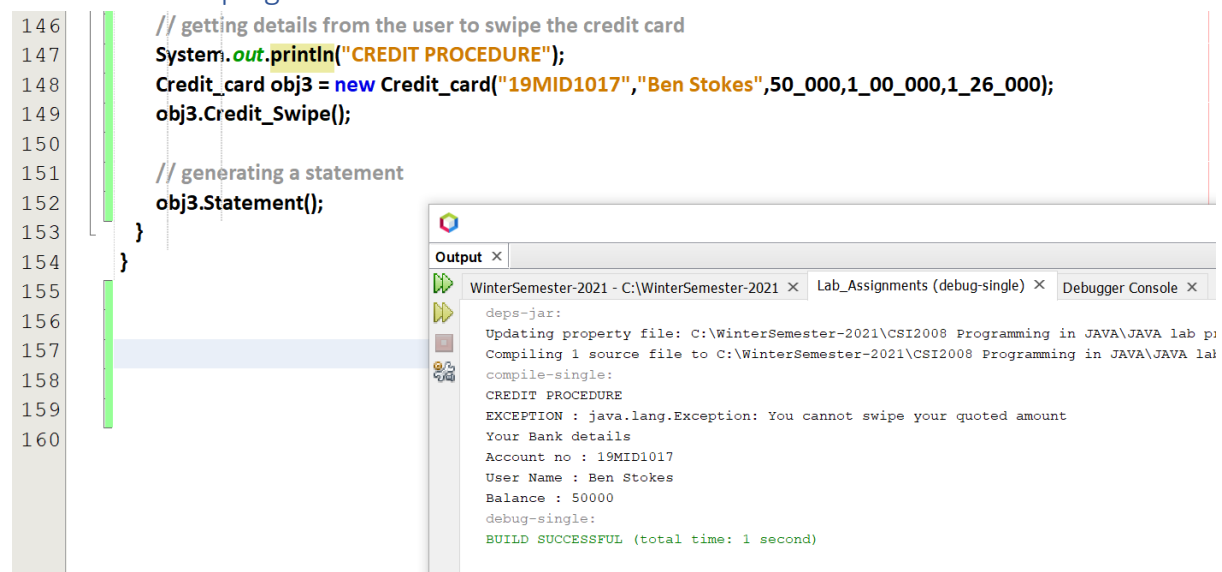
Credit card and Loan Amount Procedures

Credit card $\rightarrow \leq (\text{salary} + 1/4^{\text{th}} * \text{salary}) \rightarrow \text{Approve}$

Loan $\rightarrow \leq (\text{salary} + 3/4^{\text{th}} * \text{salary}) \rightarrow \text{Approve}$

Credit card Swiping more amount

```
146 // getting details from the user to swipe the credit card
147 System.out.println("CREDIT PROCEDURE");
148 Credit_card obj3 = new Credit_card("19MID1017", "Ben Stokes", 50_000, 1_00_000, 1_26_000);
149 obj3.Credit_Swipe();
150
151 // generating a statement
152 obj3.Statement();
153 }
154 }
155
156
157
158
159
160
```

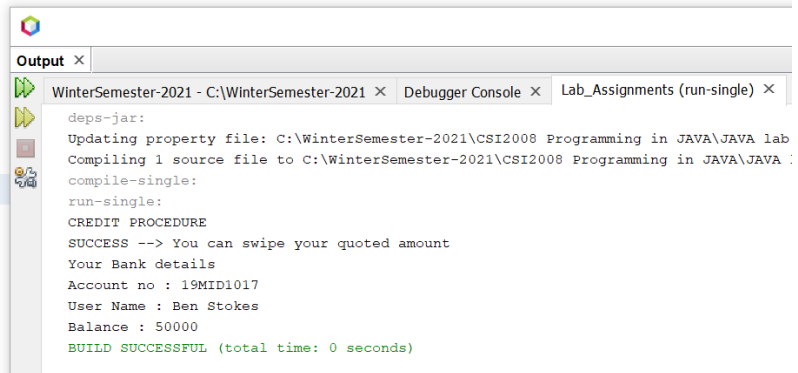


Output

```
WinterSemester-2021 - C:\WinterSemester-2021 x Lab_Assignments (debug-single) x Debugger Console x
deps-jar:
Updating property file: C:\WinterSemester-2021\CSI2008 Programming in JAVA\JAVA lab practice\Lab Assignments\build\build-jar.properties
Compiling 1 source file to C:\WinterSemester-2021\CSI2008 Programming in JAVA\JAVA lab practice\Lab Assignments\build\classes
compile-single:
CREDIT PROCEDURE
EXCEPTION : java.lang.Exception: You cannot swipe your quoted amount
Your Bank details
Account no : 19MID1017
User Name : Ben Stokes
Balance : 50000
debug-single:
BUILD SUCCESSFUL (total time: 1 second)
```

Credit card Swiping less amount

```
146 // getting details from the user to swipe the credit card
147 System.out.println("CREDIT PROCEDURE");
148 Credit_card obj3 = new Credit_card("19MID1017", "Ben Stokes", 50_000, 1_00_000, 1_24_000);
149 obj3.Credit_Swipe();
150
151 // generating a statement
152 obj3.Statement();
153 }
154 }
155
156
157
158
159
160
```

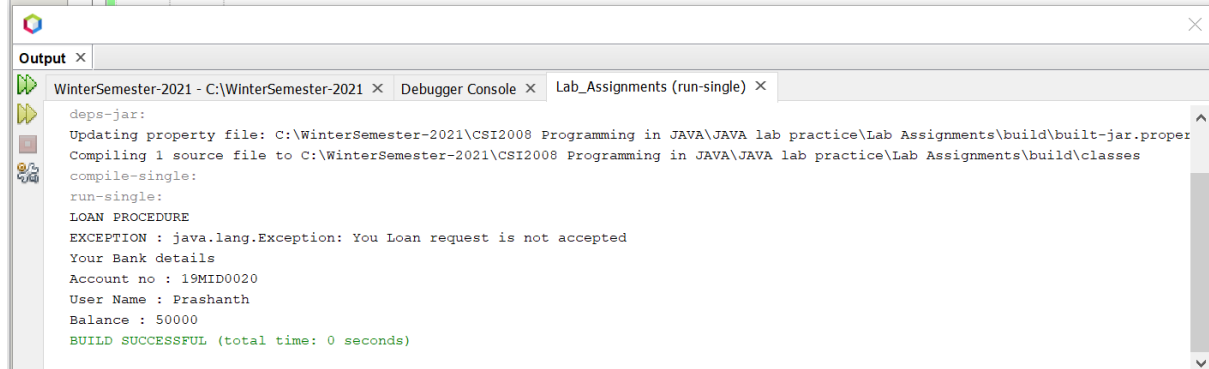


The screenshot shows the IDE's output window with the following text:

```
WinterSemester-2021 - C:\WinterSemester-2021 x Debugger Console x Lab_Assignments (run-single) x
deps-jar:
Updating property file: C:\WinterSemester-2021\CSI2008 Programming in JAVA\JAVA lab
Compiling 1 source file to C:\WinterSemester-2021\CSI2008 Programming in JAVA\JAVA :
compile-single:
run-single:
CREDIT PROCEDURE
SUCCESS --> You can swipe your quoted amount
Your Bank details
Account no : 19MID1017
User Name : Ben Stokes
Balance : 50000
BUILD SUCCESSFUL (total time: 0 seconds)
```

Applying for more loan amount

```
136 // getting details from the user to apply for a loan
137 System.out.println("LOAN PROCEDURE");
138 Loan obj2 = new Loan("19MID0020", "Prashanth", 50_000, 1_00_000, 1_76_000);
139 obj2.Loan_amount();
140
141 // generating a statement
142 obj2.Statement();
```

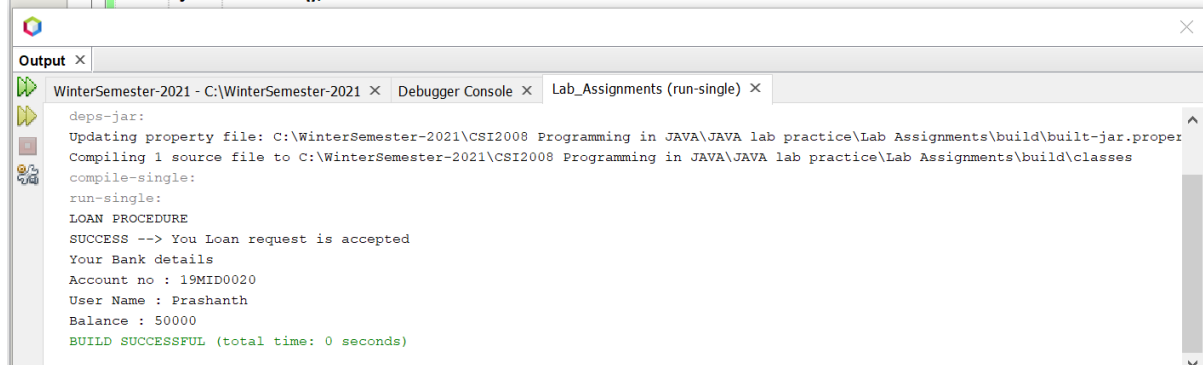


The screenshot shows the IDE's output window with the following text:

```
WinterSemester-2021 - C:\WinterSemester-2021 x Debugger Console x Lab_Assignments (run-single) x
deps-jar:
Updating property file: C:\WinterSemester-2021\CSI2008 Programming in JAVA\JAVA lab practice\Lab Assignments\build\build-jar.properties
Compiling 1 source file to C:\WinterSemester-2021\CSI2008 Programming in JAVA\JAVA lab practice\Lab Assignments\build\classes
compile-single:
run-single:
LOAN PROCEDURE
EXCEPTION : java.lang.Exception: You Loan request is not accepted
Your Bank details
Account no : 19MID0020
User Name : Prashanth
Balance : 50000
BUILD SUCCESSFUL (total time: 0 seconds)
```


Applying for less loan amount

```
136 // getting details from the user to apply for a loan
137 System.out.println("LOAN PROCEDURE");
138 Loan obj2 = new Loan("19MID0020", "Prashanth", 50_000, 1_00_000, 1_74_000);
139 obj2.Loan_amount();
140
141 // generating a statement
142 obj2.Statement();
```

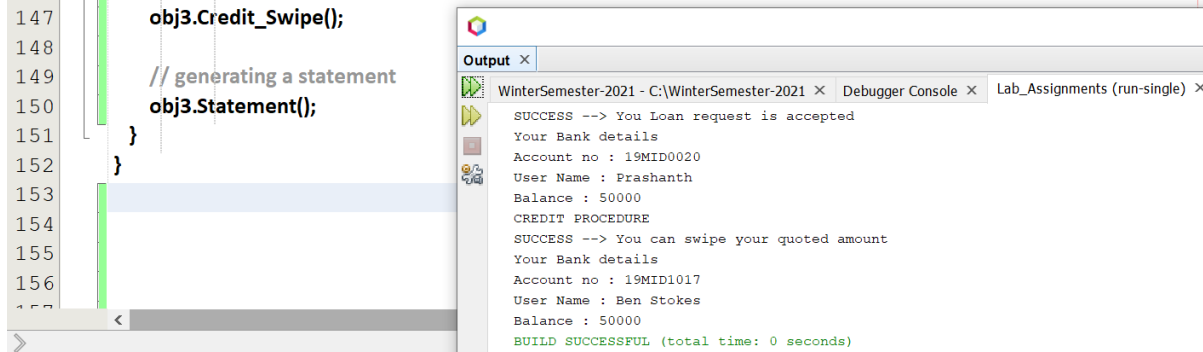


The screenshot shows an IDE window with the title 'Lab_Assignments (run-single)'. The output console displays the following text:

```
deps-jar:
Updating property file: C:\WinterSemester-2021\CSI2008 Programming in JAVA\JAVA lab practice\Lab Assignments\build\build-jar.properties
Compiling 1 source file to C:\WinterSemester-2021\CSI2008 Programming in JAVA\JAVA lab practice\Lab Assignments\build\classes
compile-single:
run-single:
LOAN PROCEDURE
SUCCESS --> You Loan request is accepted
Your Bank details
Account no : 19MID0020
User Name : Prashanth
Balance : 50000
BUILD SUCCESSFUL (total time: 0 seconds)
```

Without the above two exception

```
136 // getting details from the user to apply for a loan
137 System.out.println("LOAN PROCEDURE");
138 Loan obj2 = new Loan("19MID0020", "Prashanth", 50_000, 1_00_000, 1_74_000);
139 obj2.Loan_amount();
140
141 // generating a statement
142 obj2.Statement();
143
144 // getting details from the user to swipe the credit card
145 System.out.println("CREDIT PROCEDURE");
146 Credit_card obj3 = new Credit_card("19MID1017", "Ben Stokes", 50_000, 1_00_000, 1_24_000);
147 obj3.Credit_Swipe();
148
149 // generating a statement
150 obj3.Statement();
151 }
152 }
153
154
155
156
```

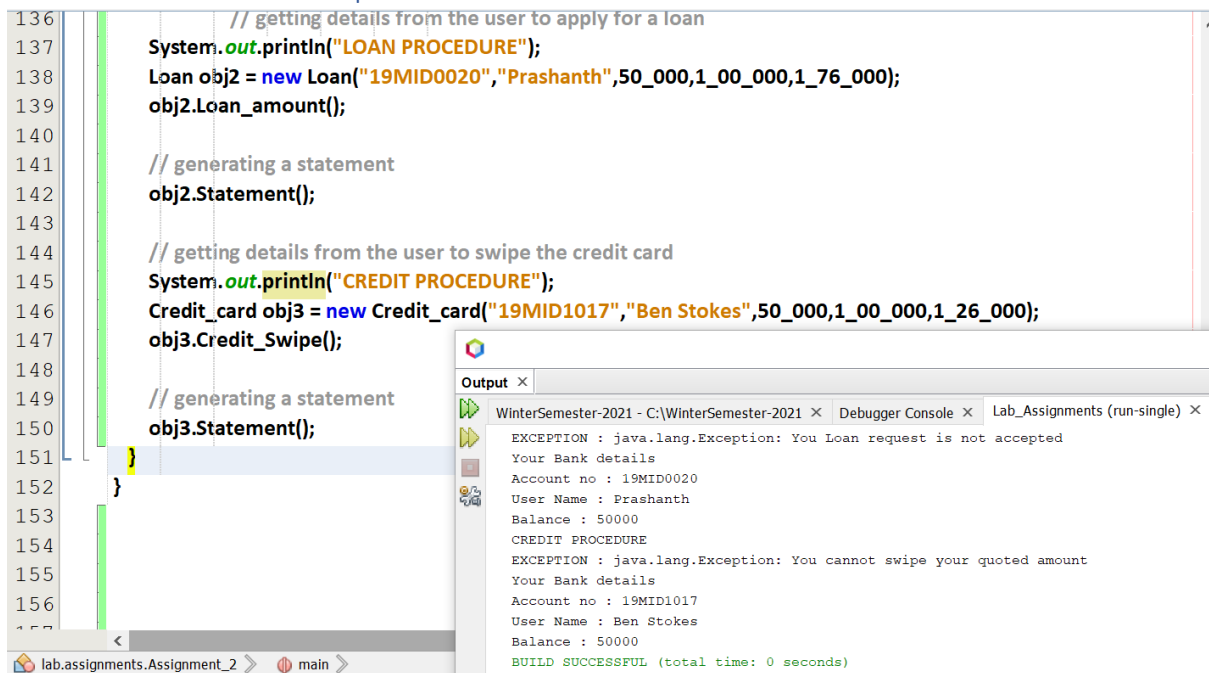


The screenshot shows an IDE window with the title 'Lab_Assignments (run-single)'. The output console displays the following text:

```
SUCCESS --> You Loan request is accepted
Your Bank details
Account no : 19MID0020
User Name : Prashanth
Balance : 50000
CREDIT PROCEDURE
SUCCESS --> You can swipe your quoted amount
Your Bank details
Account no : 19MID1017
User Name : Ben Stokes
Balance : 50000
BUILD SUCCESSFUL (total time: 0 seconds)
```

With the above two exception

```
136 // getting details from the user to apply for a loan
137 System.out.println("LOAN PROCEDURE");
138 Loan obj2 = new Loan("19MID0020", "Prashanth", 50_000, 1_00_000, 1_76_000);
139 obj2.Loan_amount();
140
141 // generating a statement
142 obj2.Statement();
143
144 // getting details from the user to swipe the credit card
145 System.out.println("CREDIT PROCEDURE");
146 Credit_card obj3 = new Credit_card("19MID1017", "Ben Stokes", 50_000, 1_00_000, 1_26_000);
147 obj3.Credit_Swipe();
148
149 // generating a statement
150 obj3.Statement();
151 }
152 }
153
154
155
156
```



The screenshot shows an IDE with a Java file named `lab.assignments.Assignment_2`. The code defines two classes: `Loan` and `Credit_card`. The `Loan` class has a `Loan_amount()` method and a `Statement()` method. The `Credit_card` class has a `Credit_Swipe()` method and a `Statement()` method. The code tests both classes. The output window shows the following:

```
Output
WinterSemester-2021 - C:\WinterSemester-2021 x Debugger Console x Lab_Assignments (run-single) x
EXCEPTION : java.lang.Exception: You Loan request is not accepted
Your Bank details
Account no : 19MID0020
User Name : Prashanth
Balance : 50000
CREDIT PROCEDURE
EXCEPTION : java.lang.Exception: You cannot swipe your quoted amount
Your Bank details
Account no : 19MID1017
User Name : Ben Stokes
Balance : 50000
BUILD SUCCESSFUL (total time: 0 seconds)
```