

# CT414 Assignment 1

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To test the application, we entered a series of incorrect data to ensure that it throws appropriate exceptions.

## 1 InvalidCredentialsException

```
● $ ./start-client.sh
RMIRegistry port = 20459
Enter username: wrongName
Enter password: 123
ApplicationClient exception:
exceptions.InvalidCredentialsException: Invalid credentials
```

Figure 1: The entry of an incorrect username or password causes an InvalidCredentialsException.

```
● $ ./start-client.sh
RMIRegistry port = 20459
Enter username: Ryan
Enter password: password
ID: 255314
Press Enter To Continue: █
```

Figure 2: Entering the correct username and password throws no exception and allows the user to continue

## 2 InvalidSessionIDException

The method `getApplicationForm` throws an `InvalidSessionIDException` if the session ID is incorrect or if the session has been started more than 10 minutes before the questions are started.

```
● $ ./start-client.sh
RMIRegistry port = 20459
Enter username: Ryan
Enter password: password
ID: 255314
Press Enter To Continue:
ApplicationClient exception:
exceptions.InvalidSessionIDException: Session timed out
```

Figure 3: Waiting 10 minutes or more between logging in and continuing with the questions caused an InvalidSessionIDException with the message “Session timed out”

The current design does not allow for the session ID to be entered manually - so the code was temporarily modified to test the case of an invalid session ID manually.

```
System.out.print(s:"Enter ID To Continue: ");
id = Long.valueOf(System.console().readLine());

// Get the application form using the session ID and fill it out
ApplicationForm form = handler.getApplicationForm(id);
for (int i = 1; i < form.numberOfQuestions(); i++) {

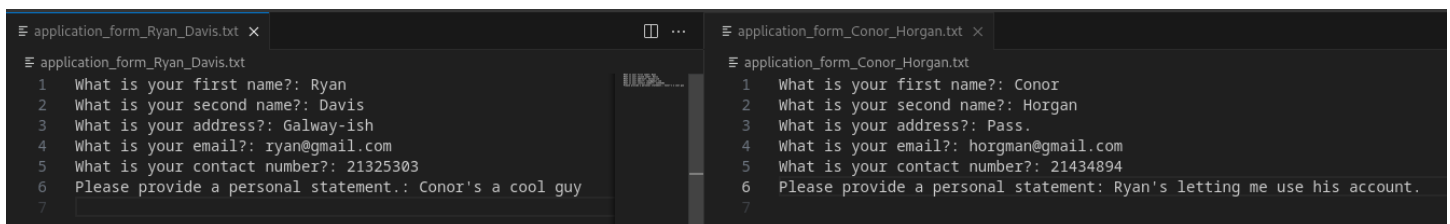
$ ./start-client.sh
RMIRegistry port = 20459
Enter username: Ryan
Enter password: password
ID: 356164
Enter ID To Continue: 12345
ApplicationClient exception:
exceptions.InvalidSessionIDException: Invalid session ID
    at server.ApplicationHandlerImpl.getApplicationForm(ApplicationHandlerImpl.java:45)
```

Figure 4: When an incorrect ID was entered, an InvalidSessionIDException was thrown.

### 3 Testing session mapping

To test the session mapping, we created multiple clients in separate terminals, logged in and answered and submitted questions at alternating times. The hashMap allowed the IDs to be retrieved regardless of order so there were no errors.

Once the questions were completed - two files were created corresponding to both of the sessions.



The image shows two side-by-side terminal windows. The left window, titled 'application\_form\_Ryan\_Davis.txt', displays a list of questions and answers for a user named Ryan. The right window, titled 'application\_form\_Conor\_Horgan.txt', displays a list of questions and answers for a user named Conor. Both windows show a sequence of questions followed by the user's responses.

Question	Ryan Davis Answer	Conor Horgan Answer
1 What is your first name?:	Ryan	Conor
2 What is your second name?:	Davis	Horgan
3 What is your address?:	Galway-ish	Pass.
4 What is your email?:	ryan@gmail.com	horgman@gmail.com
5 What is your contact number?:	21325303	21434894
6 Please provide a personal statement.:	Conor's a cool guy	Ryan's letting me use his account.

Figure 5: The filenames correspond with the name of the applicant and the contents are the questions and answers provided in the ApplicationForm.

## 4 InvalidQuestionNumberException

To test InvalidQuestionNumberException - we changed the for loop in the client to decrement rather than increment from Question 1.

```
// Get the application form using the session ID and fill it out
ApplicationForm form = handler.getApplicationForm(id);
// Whoops
for (int i = 1; i <= form.numberOfQuestions(); i--) {
    System.out.println(form.getQuestion(i));
    System.out.print("Answer for question " + i + ": ");
    String answer = System.console().readLine();
    form.setAnswer(i, answer);
}
```

```
rcmdavis@fedora:~/repos/distributed-systems$ ./start-client.sh
RMIRegistry port = 20345
Enter username: Ryan
Enter password: password
ID: 580722
Press Enter To Continue:
What is your first name?
Answer for question 1: Ryan
ApplicationClient exception:
exceptions.InvalidQuestionNumberException: Invalid question number: 0
    at server.ApplicationFormV1.getQuestion(ApplicationFormV1.java:51)
    at client.ApplicationClient.main(ApplicationClient.java:45)
```

Figure 6: This caused an InvalidQuestionNumberException