GUI Testing

Automated Testing

We initially used a tool to automate GUI testing, similar to the Selenium Driver tool for Web. Since our application is an android application made using Flutter, we had only one choice to do automated GUI testing -- using in-built Flutter driver tool.

It has several functionalities to help simulate what a user would do with the app:

- *find.byKey()* : find a widget (text field, button, etc. using it's unique key)
- *find.text('some text')*: find a widget by text in it
- *enterText():* enter text in a text field
- *tap():* click a button

For example, here is a code snippet from our login screen test code to enter email and password and then click on Login button:

```
// correct email, incorrect password
await tester.enterText(find.byKey(Key("email")), 'hmodi2457@gmail.com');
await tester.enterText(find.byKey(Key("password")), '1234567');
await tester.tap(find.byType(RaisedButton));
```

We then wait for screen to refresh and then check if Login button is still on the screen (which means login has failed; since otherwise we would be on user's home page and no Login button would be present on screen):

```
await tester.pump();
expect(find.byType(FlatButton), findsOneWidget);
```

This test passes, as the password entered was wrong, and login button (which is found using its type, FlatButton is still present on screen).

Here is another code snippet from Register user test code (for a case when user tries to register using an email that was already taken):

```
// email already taken
await tester.enterText(find.byKey(Key("email")), 'hmodi2457@gmail.com');
await tester.enterText(find.byKey(Key("password")), 'pass');
await tester.enterText(find.byKey(Key("username")), 'abcd123');
await tester.enterText(find.byKey(Key("phone")), '1234567890');
await tester.tap(find.byType(RaisedButton));
await tester.pump();
expect(find.byType(FlatButton), findsOneWidget);
```

This would give an error like “Email already taken”, and we stay on the Login screen, hence find Login button on screen, and the test pass.

However, we faced a problem when testing for positive cases, like using valid email and password to login, and not expecting to find Login button on screen. After some analysis, we concluded that after clicking login button, the code was not waiting long enough (it takes around 25-30 seconds to successfully login in our app) before checking if login button is still present on screen.

We tried to use several methods to delay the checking of condition, like:

- Timer(const Duration(seconds: 30), () => { // expect condition here });

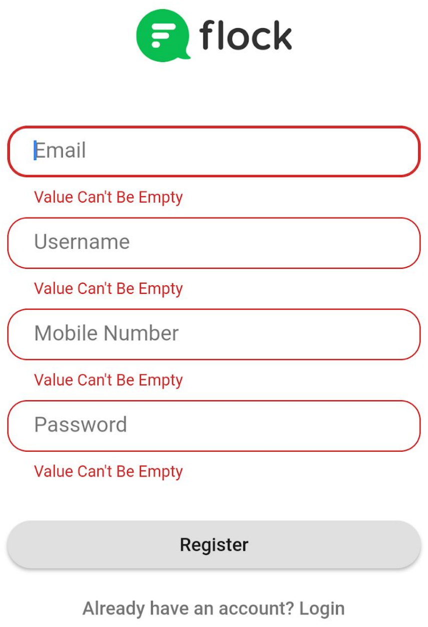
- sleep(const Duration(seconds: 30)); // expect condition after this line

- Future.delay(const Duration(seconds: 30), () => { // expect condition here});

- await tester.pumpAndSettle(); // instead of usual pump(), use this method which wait for all animations to finish

While all these methods look similar in signature, none of these actually helped in our case. And without simulating login, we could not test other functionalities which can be done only after logging in. Hence, we turned to method of Manual GUI testing, to complete testing for rest of the functions (we did automated testing only for Login and Register screens -- for negative test cases).

Manual Testing



Email

Value Can't Be Empty

Username

Value Can't Be Empty

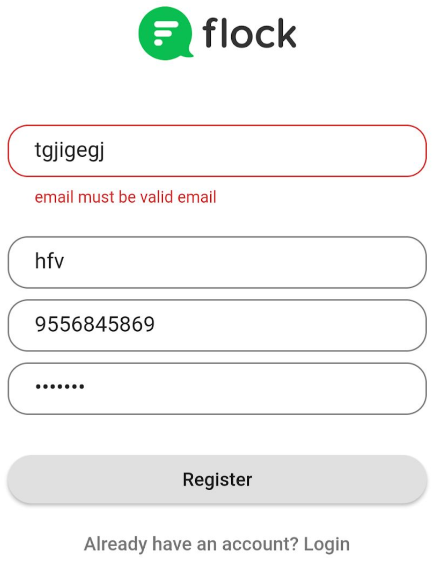
Mobile Number

Value Can't Be Empty

Password

Value Can't Be Empty

No field can be left empty.



tgjigegj

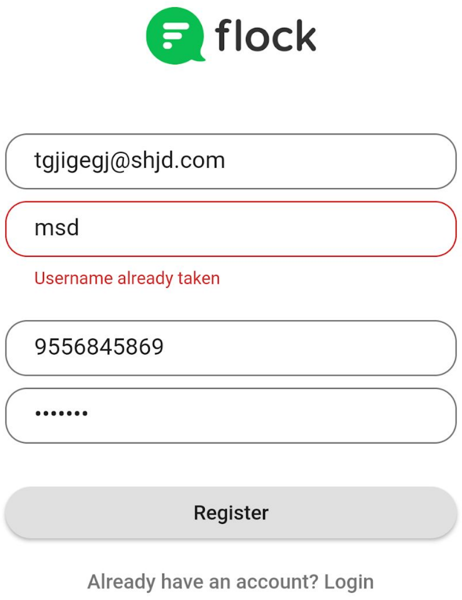
email must be valid email

hfv

9556845869

•••••••

Checks for a valid email-id



tgjigegj@shjd.com

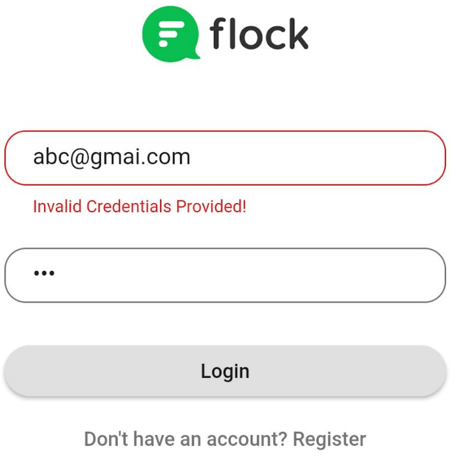
msd

Username already taken

9556845869

•••••••

The application requires the username to be unique at the time of registration

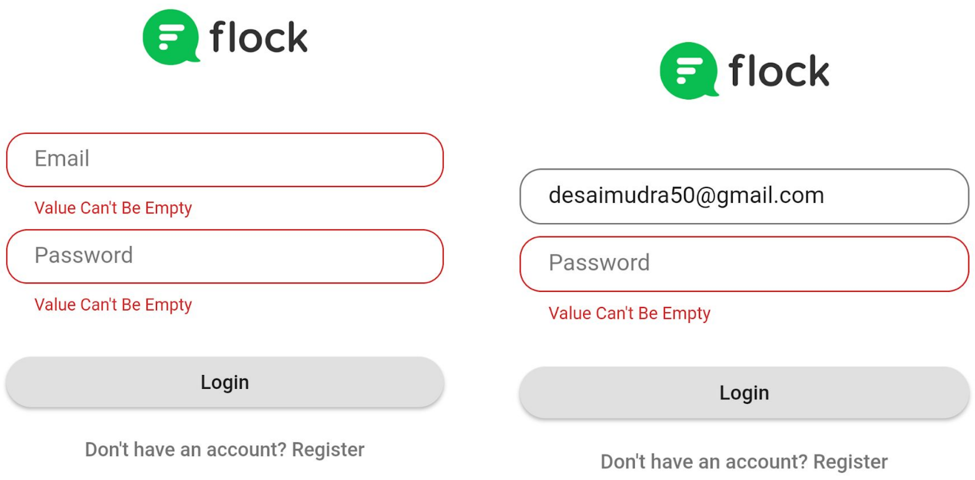


abc@gmai.com

Invalid Credentials Provided!

•••

Checks for valid credentials while login



flock

Email

Value Can't Be Empty

Password

Value Can't Be Empty

Login

Don't have an account? Register

flock

desaimudra50@gmail.com

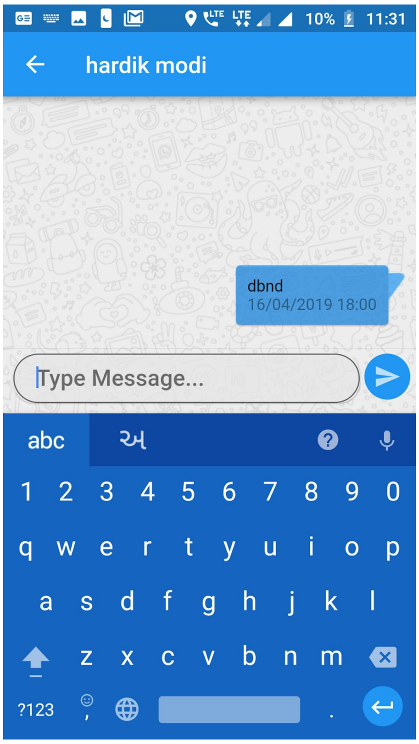
Password

Value Can't Be Empty

Login

Don't have an account? Register

Any value cannot be empty at the time of login



11:31

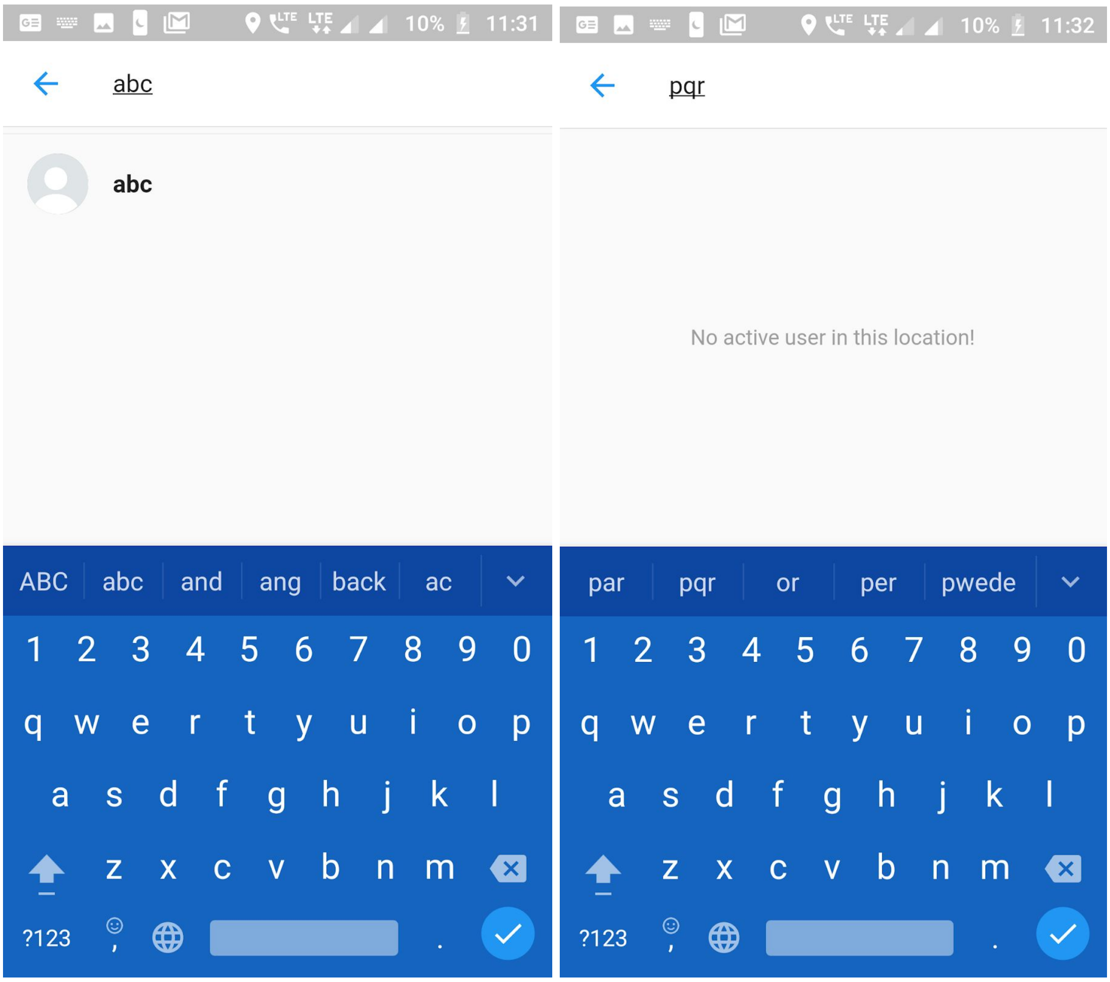
10%

hardik modi

dbnd
16/04/2019 18:00

Type Message...

Empty messages cannot be sent



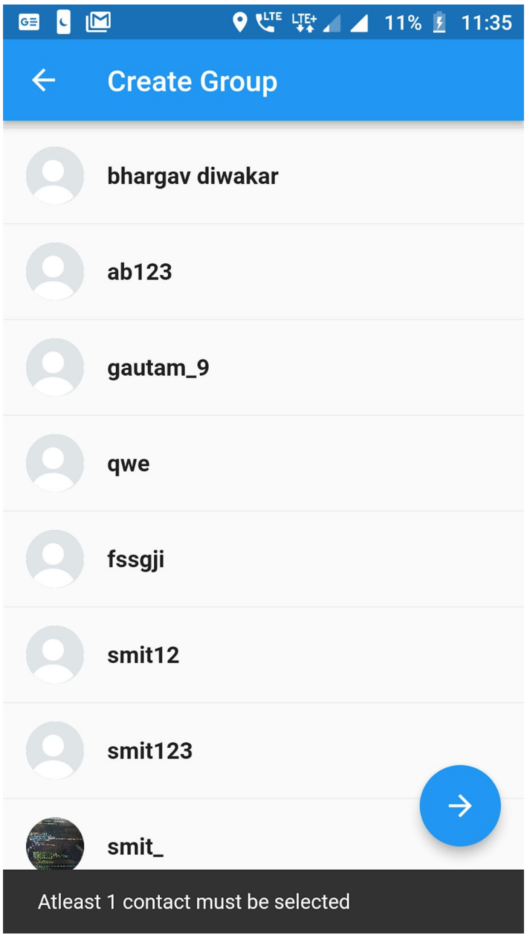
abc

abc

pqr

No active user in this location!

Search individuals/groups



bhargav diwakar

ab123

gautam_9

qwe

fssgji

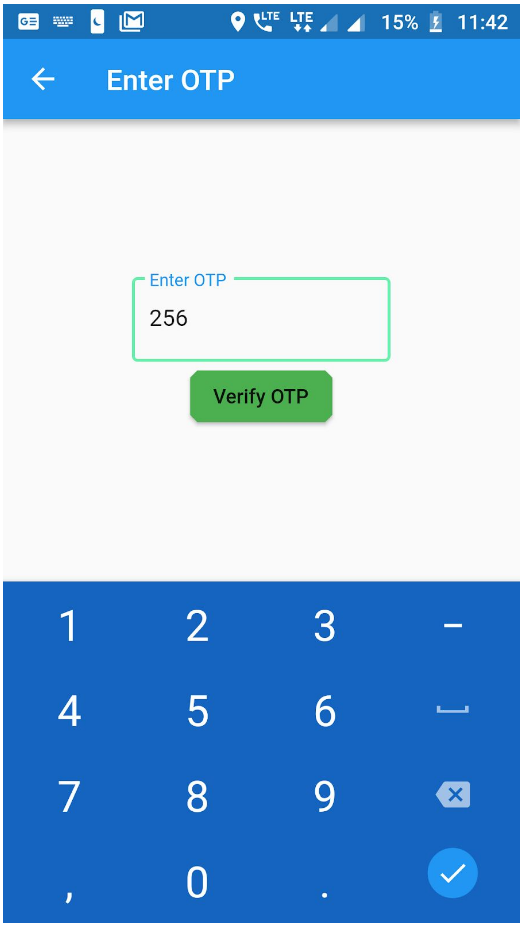
smit12

smit123

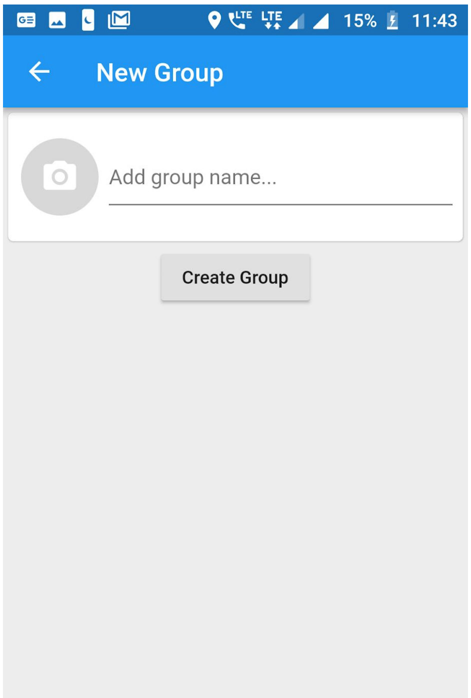
smit_

Atleast 1 contact must be selected

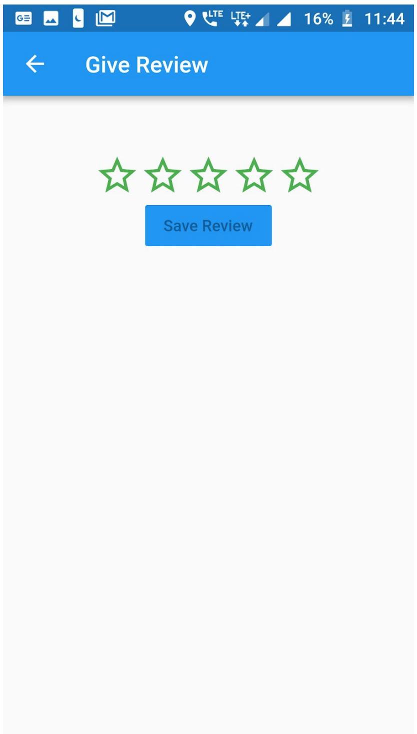
At Least one member should be selected at the time of login.



Does not verify in case of incorrect otp



Create group option is disabled unless a user provides a group name



Save review option is disabled until user gives at least one star.