

**2CS504 - Software Engineering**

**19BCE006 – Het Aghera**

**19BCE011 - Gurpal singh Anand**

**19BCE023 – Mihir Bhanderi**

## **Practical - 9 - Formal specification using Z notation**

### **Variable initialisation**

Z

Username: = Rahul555Username

|Rohan777Username

|Raj111Username

Password: = rahulabcPass

|rohanabcPass

|rajabcPass

Status: = Safe

|Suspicious

|Blocked

Alert: = Zero

|One

|Two

|Three

Quantity: Available

|Not Available

Shipping: = Possible

|Not possible

AddToCart: = Yes

|No

ItemsInCart: = Zero

|Non-zero

Login
User: Username If User ∈ Username Pass: Password ^alt = One currentStatus: Status ^alt = Two UserStatus: Status Then UserStatus = Suspicious
Else USerStatus = Blocked
If User ∈ Username ^Pass ∈ Password ^userStatus != Blocked Then currentStatus= Online Else currentStatus= Offline

## Buy Product

buyProduct
ΔLogin Alert: Alert quan: Quantity add: AddToCart itemsToAdd: N itemsInCart: N
If State=Online ^userStatus != Blocked ^Alert != Three ^quan = Available ^add = Yes Then itemsInCart=itemsInCart+itemsToAdd  Else userStatus = Suspicious

## Alert

Alert
Logout

Logout

$\Delta$ Login

If User  $\in$  Username

$\wedge$  Pass  $\in$  Password

$\wedge$  stat = Online

Then stat = Online

Else stat = Offline