A

B

G1

AB

C

C

G2

ABC

LED

LED

Green LED = ABC

Red LED = $\overline{ABC}$

```
                    ┌──────────┐
                    │  Start   │
                    └────┬─────┘
                         │
        action           │◄──────────────────────────────────────┐
                         ▼                                        │
              ┌──────────────────┐   ┌──────────────────┐         │
              │ Enter username   │   │ + Account        │         │
              │ and password     │   │   attempts       │         │
              └────────┬─────────┘   └──────────────────┘         │
                       │                                          │
                       ▼                                          │
                    ◇ Is username valid ◇───NO──► / Show error ──►┌──────────────────┐
                       │                           message /      │ increment        │
                       │ Yes                                      │ attempts         │
                       ▼                                          └──────────────────┘
                    ◇ Is password correct ◇───No──►┌──────────────┐
                       │                            │ Lock account │
                       │ Yes                        └──────┬───────┘
                       ▼                                   │
                    ◇ Have 3 attempt been ◇─────yes──► / Show error │
                       exceded ◇                         message /
                       │
                       │
                       ▼                           / Login Successful /
                      ( ◯ )◄───────────────────────────┘
                       │
                       ▼
                    ┌──────────┐
                    │   End    │
                    └──────────┘
```

Start

action

Enter username and password

+ Account attempts

Is username valid — NO → Show error message → increment attempts

Yes

Is password correct — No → Lock account

Yes

Have 3 attempt been exceded — yes → Show error message

Login Successful

End