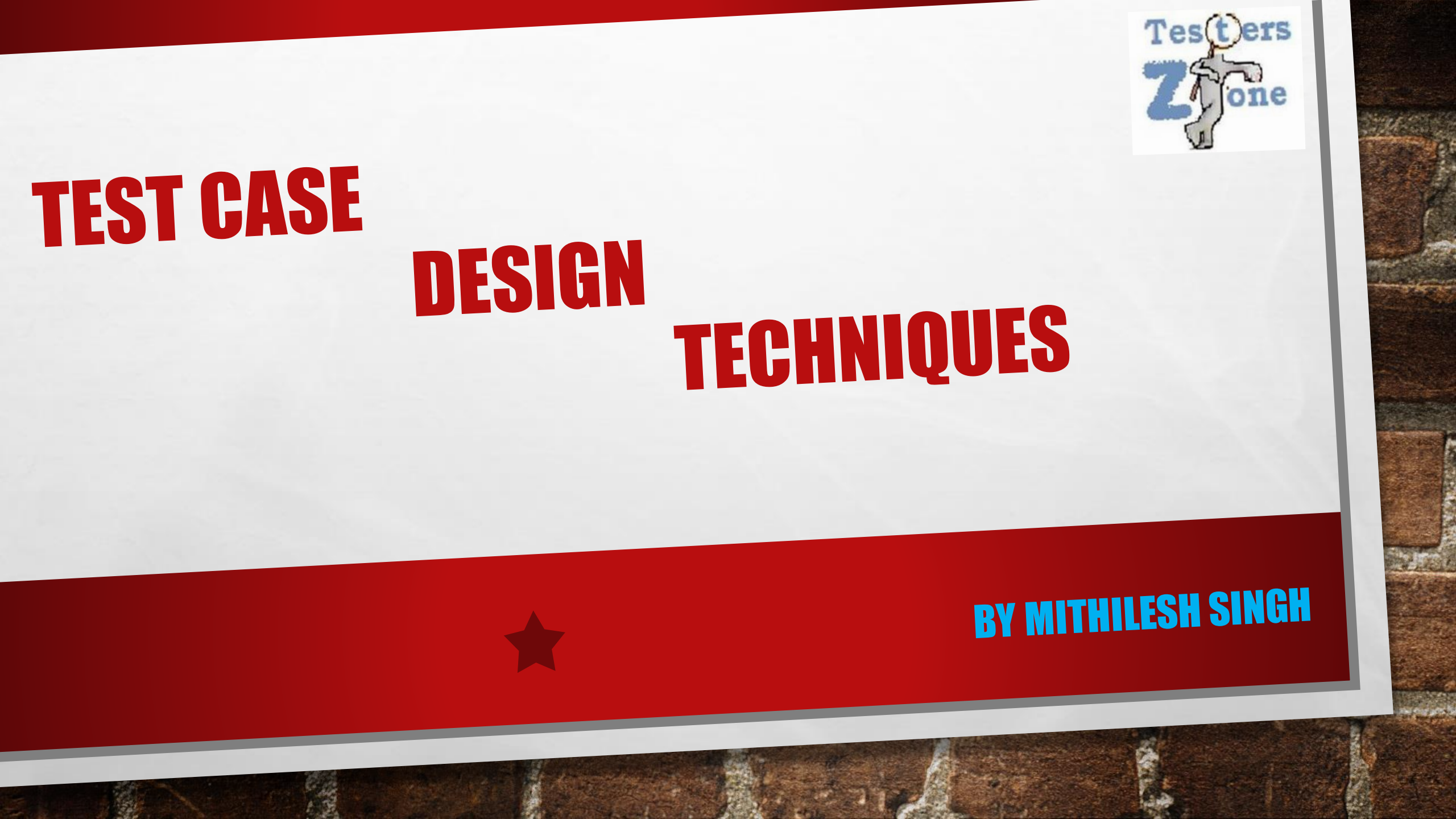

TEST CASE
DESIGN
TECHNIQUES
BY MITHILESH SINGH

# DEFINITION

- TEST CASE DESIGN TECHNIQUES IS A TECHNIQUE THAT HELPS TESTERS TO WRITE THE TEST CASES IN SUCH A WAY THAT TEST COVERAGE IS MORE.
- BETTER TEST COVERAGE HELPS TO LOG MORE NO OF EXISTING BUGS AND DELIVER QUALITY PRODUCT.

# TYPES OF TCDT


- ERROR GUESSING
- EQUIVALENT PARTIONING
- BOUNDARY VALUE ANALYSIS
- STATE TRANSITION TECHNIQUES
- DECISION TABLE TECHNIQUES

# • ERROR GUESSING


- IT IS ONE OF THE TEST CASE DESIGN TECHNIQUE WHERE TESTERS ANALYSE MORE SCENARIOS AGAINST THE EXPECTED OUTCOME TO FIND OUT MORE DEFECTS.
- IN THIS TECHNIQUES WE USE MORE NO OF NEGATIVE INPUTS WITH DIFFERENT COMBINATION.
- NOTE: NEGATIVE INPUT DOES NOT MEAN NEGATIVE NO. LIKE –4, -7 ETC. RATHER INPUT WHICH DIFFERS FROM EXPECTED INPUT MIGHT ALSO CONSIDER AS NEGATIVE INPUT.

# EQUIVALENT PARTIONING

- IN THIS TECHNIQUE WE DIVIDE THE ENTIRE RANGE OF INPUT INTO CLASSES AND THEN PICK ANY ONE VALUE FROM THE SPECIFIC CLASS, IF TEST CASE GETS PASS FOR THAT INPUT VALUE THEN WE ASSUME TEST CASE WILL GET PASS FOR ALL THE OTHER VALUES FALL UNDER THAT CLASS RANGE.
- EXAMPLE: THERE IS PAYMENT APP WHICH CAN TRANSFER AMOUNT 1-5000 AT A TIME. NOW WE NEED TO CHECK THAT AMOUNT FIELD FOR THIS RANGE. NOW WE CAN DIVIDE THIS RANGE INTO DIFFERENT CLASSES LIKE –499 - 0, 1-500, 501-1000, 1001-1500, 1501-2000, 2001-2500, 2501-3000, 3001-3500, 3501-4000, 4001-4500, 4501-5000, 5001-5500. NOW WE CAN PICK ONE ONE VALUE FROM THIS CLASS RANGE AND TEST THAT FIELD. SUPPOSE I PICKED 20 FROM 0-499 RANGE IF TEST CASE WILL GET PASSED FOR THIS VALUE THEN WILL ASSUME 0-499 RANGE IS TESTED NOW MOVE TO OTHER CLASSES.
- NOTE: THERE IS NO ANY RULE THAT SAYS NO. OF DIVISION INTO CLASSES IT'S UP TO TESTERS HOW THEY DIVIDE. AND ALSO THERE IS NO ANY RULE TO PICK ONLY ONE TEST INPUT FROM THE RANGE. TESTERS MIGHT PICK MULTIPLE VALUES FROM EACH CLASS AS TEST INPUT AND CHECK.

# • BOUNDARY VALUE ANALYSIS


- IN THIS TECHNIQUE WE USE ONE SMALL FORMULA TO TEST THE SPECIFIC RANGE OF INPUT.
- SUPPOSE WE ARE TAKING SAME EXAMPLE WHICH DISCUSSED IN EQUIVALENT PARTIONING, THERE IS PAYMENT APP WHICH CAN TRANSFER AMOUNT 1-5000 AT A TIME. WE DIVIDED THIS RANGE INTO MULTIPLE CLASSES --> –499 - 0, 1-500, 501-1000, 1001-1500, 1501-2000, 2001-2500, 2501-3000, 3001-3500, 3501-4000, 4001-4500, 4501-5000, 5001-5500. GREEN ONE IS POSITIVE INPUTS AND RED ONE IS NEGATIVE. NOW WE CAN APPLY BELOW FORMULA FOR EACH RANGE

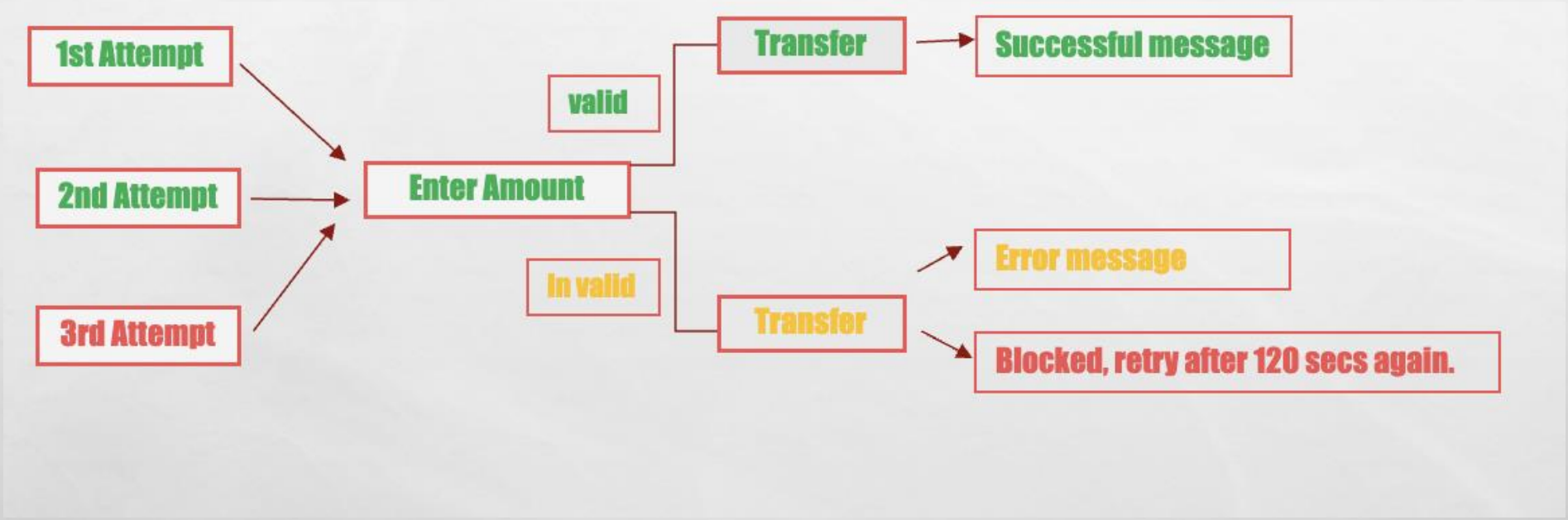
  X-Y = X-1, X, X+1, Y-1, Y, Y+1.

  1001-1500 = 1000, 1001, 1002, 1499, 1500, 1501

- NOTE: THIS TECHNIQUE ALWAYS USE FOR RANGE OF VALUES.

# • STATE TRANSITION TECHNIQUE

- THIS IS THE TECHNIQUE WHERE WE TEST THE DIFFERENT PHASES/STAGES OF THE APPLICATION.
- EXAMPLE: THERE IS A CONDITION IN YOUR APPLICATION LIKE IF USER TRY TO DO THE PAYMENT WITH INVALID AMOUNT MORE THAN TWICE THEN BLOCK THE USER FOR 120 SECS. THEN FLOW WILL BE



# • DECISION TABLE TECHNIQUES

- THIS TECHNIQUE IS ALSO KNOWN AS CAUSE AND EFFECT TABLE, IN THIS TABLE WE COMBINE MULTIPLE CONDITIONS AND ANALYSIS THEIR EFFECT IN FORMS OF TABULAR FORM.
- LET US CONSIDER A SCENARIO, WHERE WE HAVE 3 CONDITIONS.
  1. FIRST TIME USER WILL GET 100 RUPEES IN THE ACCOUNT,
  2. IF SOMEONE SHARE THE APP WITH FRIENDS AND THEY INSTALL IT, EACH INSTALLATION WILL GIVE 50 RUPEES TO THE PERSON UP TO 4 LIMIT.
  3. IF 5 OR MORE THAN 5 SUGGESTED MEMBERS ARE INSTALLING APP THEN YOU WILL GET 350 RUPEES.
- FORMULA = 2^N ---> N IS NO OF CONDITIONS.

| Rules / Conditions | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| First Time User | T | T | T | T | F | F | F | F |
| Shared App link with Friends < =4 | T | T | F | F | T | T | F | F |
| Shared App link with Friends >=5 | T | F | T | F | T | F | T | F |
| Result | -Ve Test Case | Correct | Correct | Correct | -Ve Test Case | Correct (if not shared before) | Correct (if not shared before) | Correct |


thank
you