SNS COLLEGE OF TECHNOLOGY

Kurumbapalayam (Po), Coimbatore – 641 035

An Autonomous Institution

Accredited by NAAC – UGC with 'A++' Grade

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COURSE NAME: 23ITO201- Software Testing (OPEN ELECTIVE)

III YEAR / VI SEMESTER

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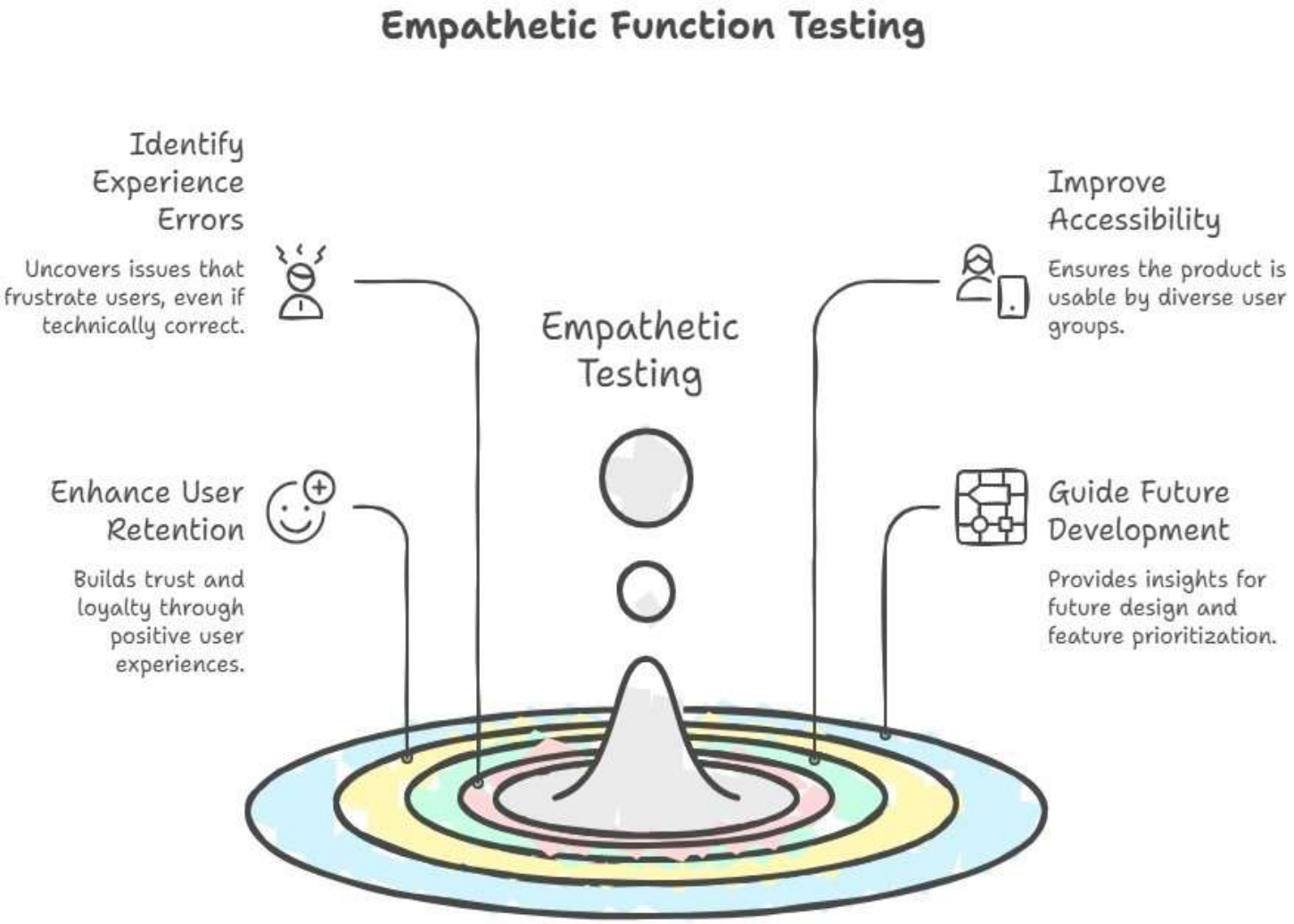
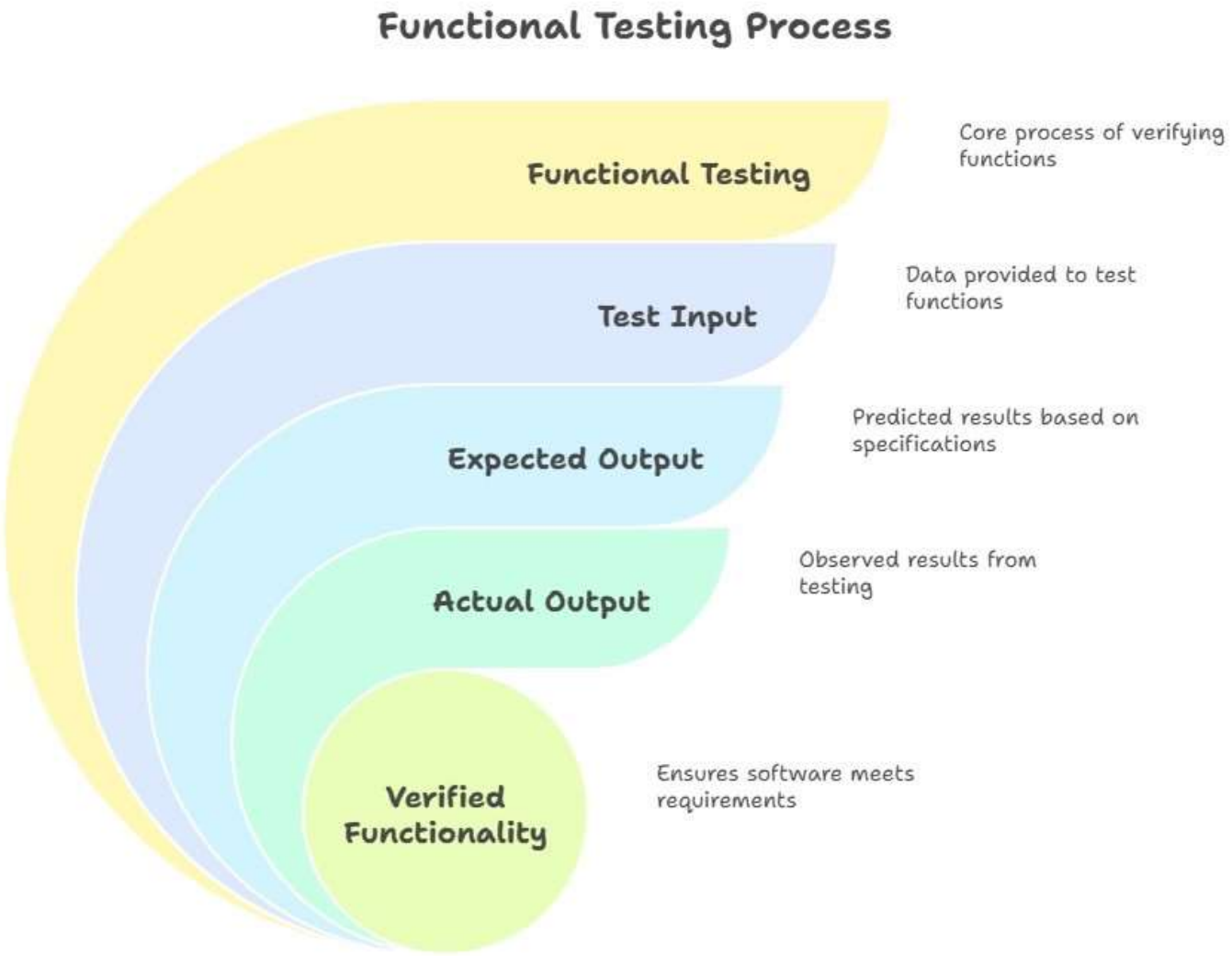
Unit 2 - TEST CASE DESIGN STRATEGIES

Topic : CODE FUNCTIONAL TESTING

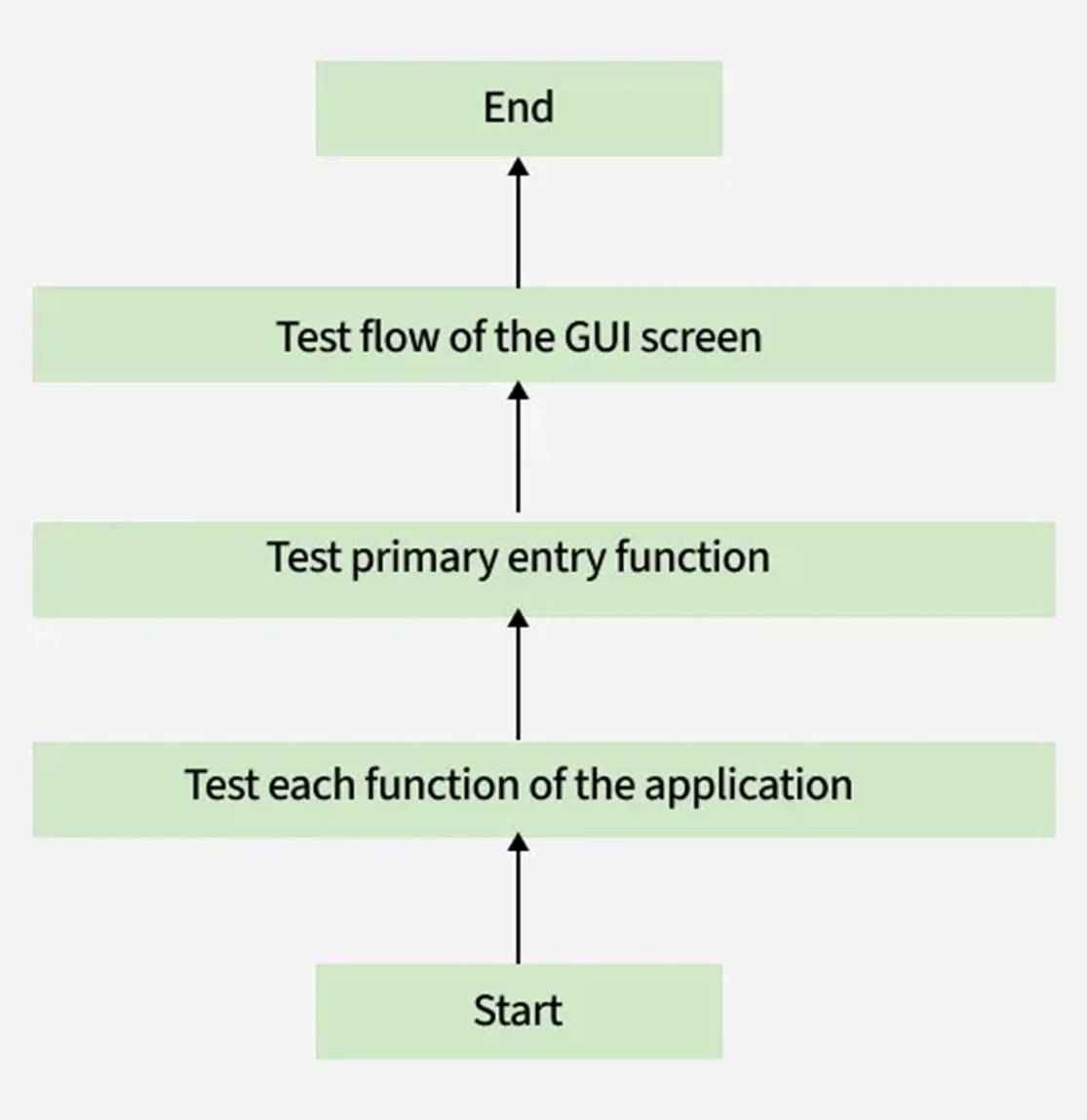
Empathy in Code Functional Testing



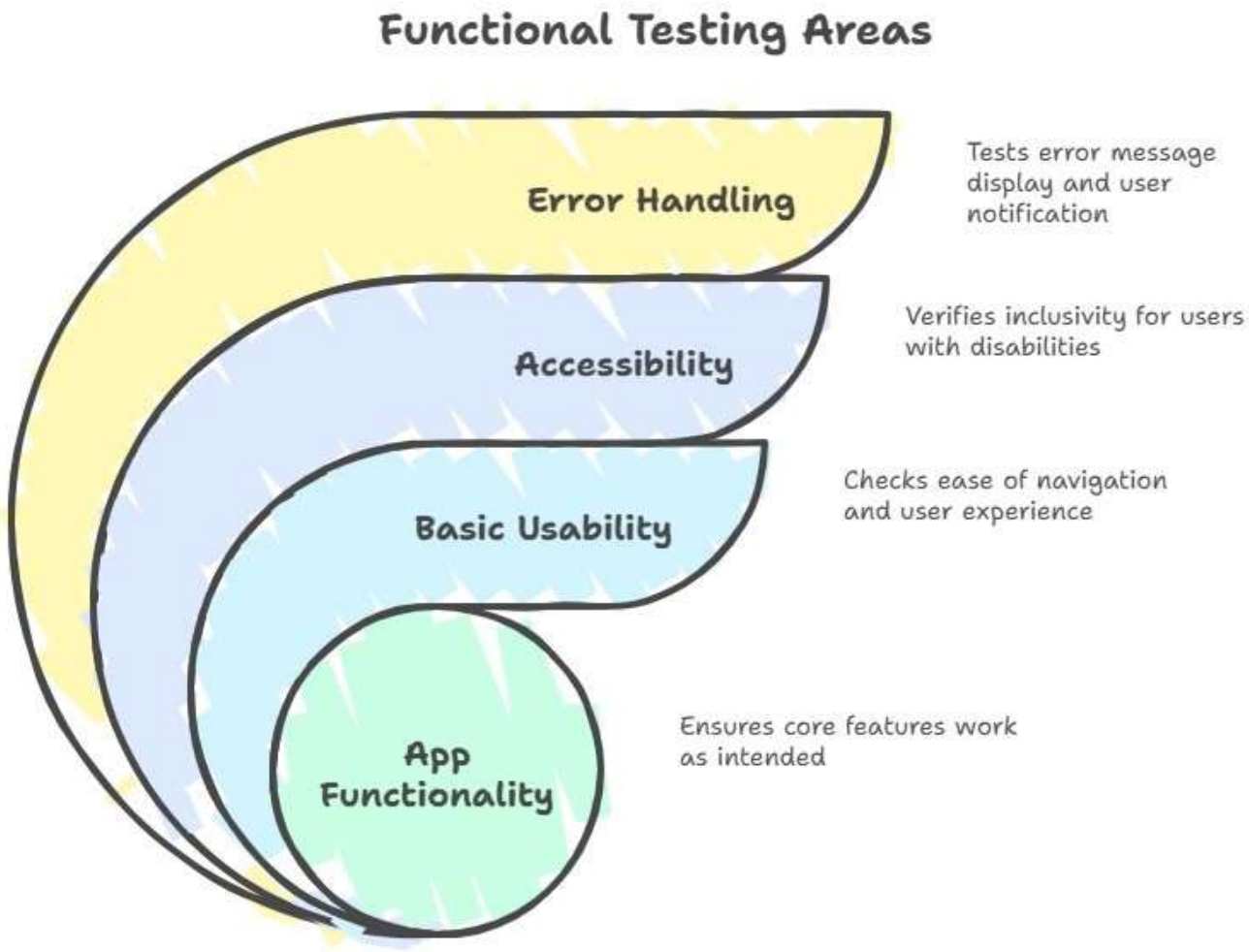
Define – Functional Testing Process



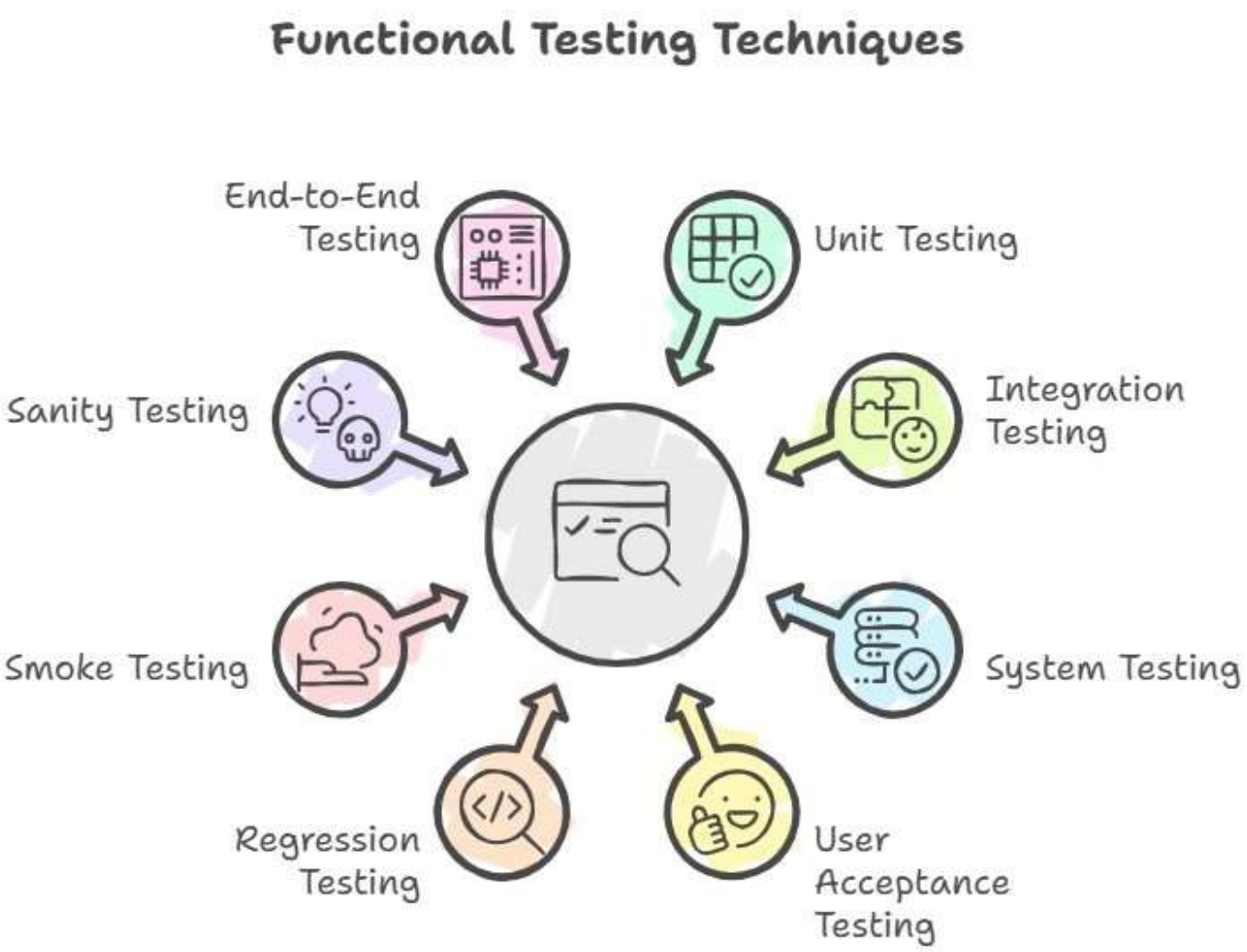
Purpose of Functional Testing



Functional Testing Area



Functional Testing Techniques



Activity

Sample Program (Login Function – Python)

```
def login(username, password):
    if username == "admin" and password == "1234":
        return "Login Successful"
    elif username == "" or password == "":
        return "Fields cannot be empty"
    else:
        return "Invalid Credentials"
```

Test Case ID	Username	Password	Expected Output
TC01	admin	1234	Login Successful
TC02	admin	0000	Invalid Credentials
TC03	""	1234	Fields cannot be empty
TC04	user	1234	Invalid Credentials
TC05	""	""	Fields cannot be empty

Benefits of Functional Testing

Bug-free product

Ensures delivery of a high-quality, error-free product

Customer satisfaction

Meets all requirements, leading to satisfied customers

Testing focused on specifications

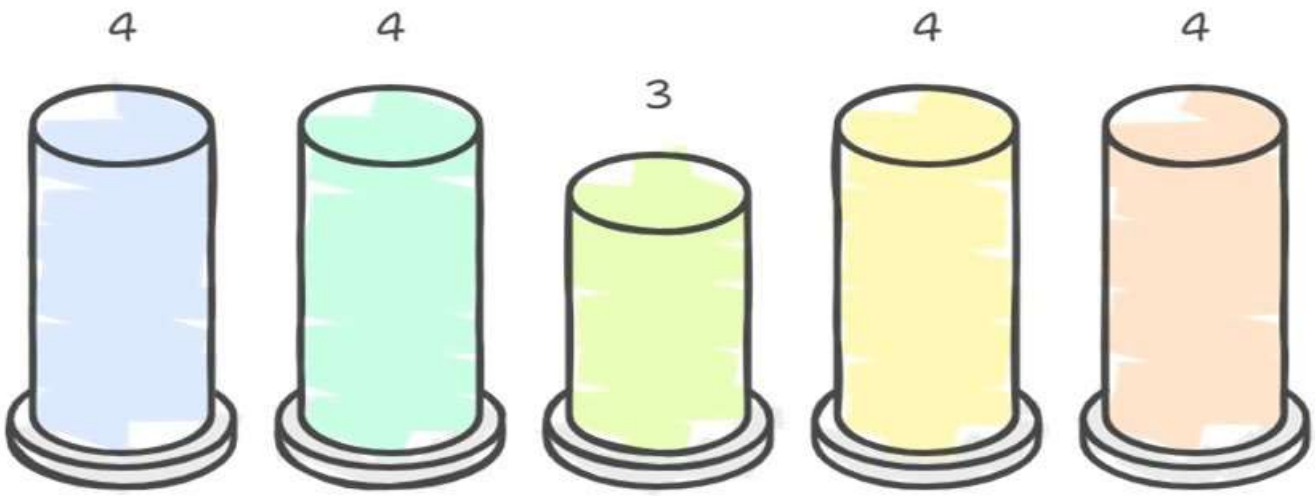
Tests based on customer usage and specifications

Proper working of application

Ensures the application functions as expected

Improves quality of the product

Enhances security, safety, and overall product quality



MCQ

MCQ – Functional Testing (Software Testing)

1. Functional Testing is mainly used to test:

a) Internal code structure
b) External behavior of the system
c) Hardware performance
d) Database size

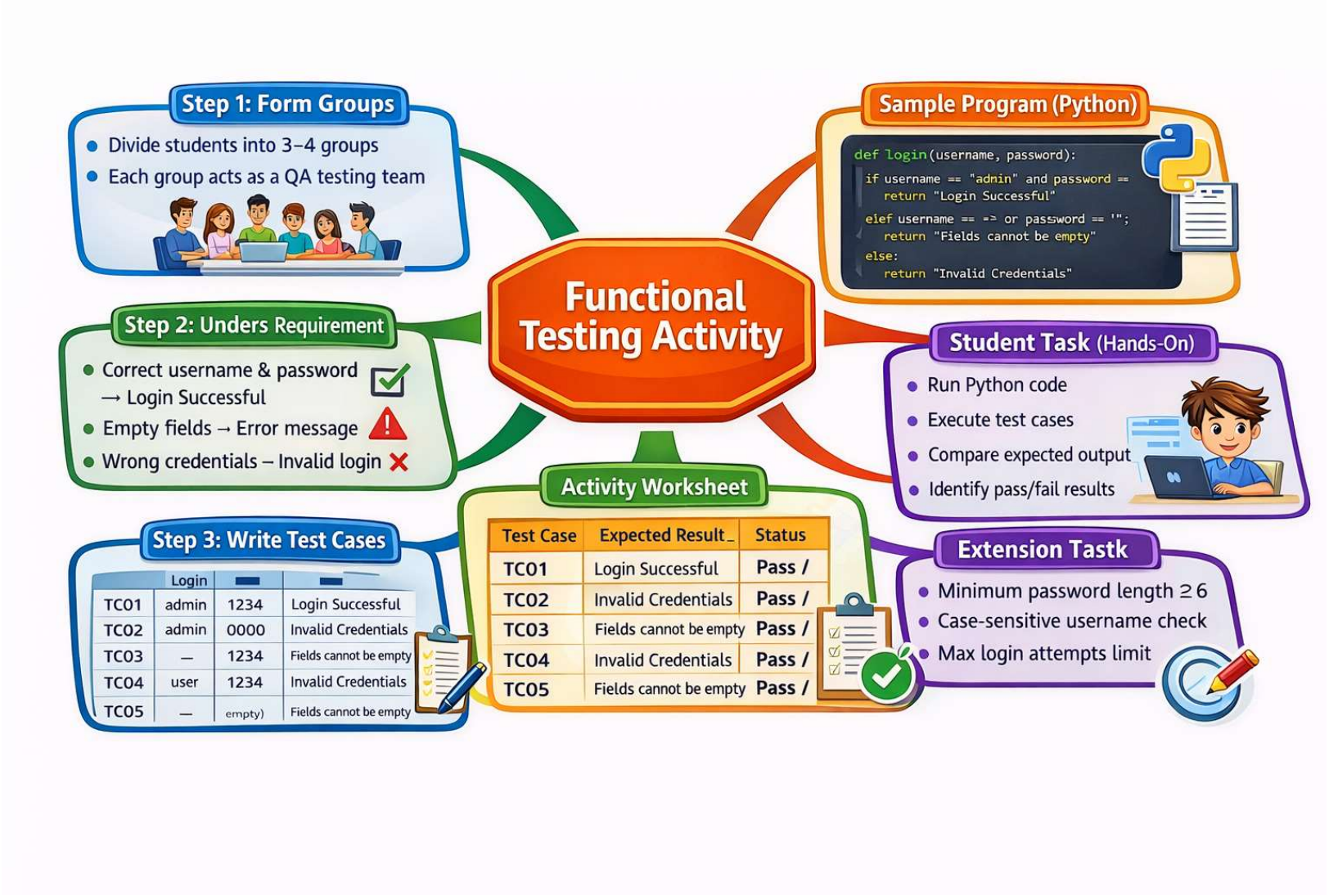
Answer: b) External behavior of the system

2. Functional Testing is based on:

a) Source code
b) Design documents
c) Software requirements and specifications
d) Compiler output

Answer: c) Software requirements and specifications

Mind Map


Functional Testing Activity
Step 1: Form Groups
Divide students into 3–4 groups
Each group acts as a QA testing team
Step 2: Unders Requirement
Correct username & password → Login Successful
Empty fields → Error message
Wrong credentials – Invalid login
Step 3: Write Test Cases
Login
TC01 admin 1234 Login Successful
TC02 admin 0000 Invalid Credentials
TC03 — 1234 Fields cannot be empty
TC04 user 1234 Invalid Credentials
TC05 — empty) Fields cannot be empty
Sample Program (Python)
def login(username, password):
if username == "admin" and password ==
return "Login Successful"
elif username == => or password == '";
return "Fields cannot be empty"
else:
return "Invalid Credentials"
Student Task (Hands-On)
Run Python code
Execute test cases
Compare expected output
Identify pass/fail results
Activity Worksheet
Test Case Expected Result_ Status
TC01 Login Successful Pass /
TC02 Invalid Credentials Pass /
TC03 Fields cannot be empty Pass /
TC04 Invalid Credentials Pass /
TC05 Fields cannot be empty Pass /
Extension Tastk
Minimum password length ≥ 6
Case-sensitive username check
Max login attempts limit

TEXT BOOKS	
1.	Srinivasan Desikan and Gopalaswamy Ramesh, ―Software Testing – Principles and Practices, Pearson Education, 2006.
REFERENCES	
1.	Ilene Burnstein, ―Practical Software Testing, Springer International Edition, 2003
2.	Edward Kit, Software Testing in the Real World – Improving the Process‖, Pearson Education, 1995
3.	Boris Beizer, Software Testing Techniques – 2nd Edition, Van Nostrand Reinhold, New York, 1990.
4.	Aditya P. Mathur, ―Foundations of Software Testing _ Fundamental Algorithms and Techniques, Dorling Kindersley (India) Pvt. Ltd., Pearson Education, 2008.

Thank You

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