

INTRODUCTION TO SOFTWARE DEVELOPMENT

•WEEK 3 DAY 2
LED BY: EMILY CROSE
FOR
OAKLAND UNIVERSITY

LAST SESSION REVIEW

QUESTIONS FROM
LAST SESSION?



TERMS TO LISTEN FOR

Interface/UI

- Visual elements of our application

UX (User Experience)

- Functionality of the app and its features

Root Cause Analysis (RCA)

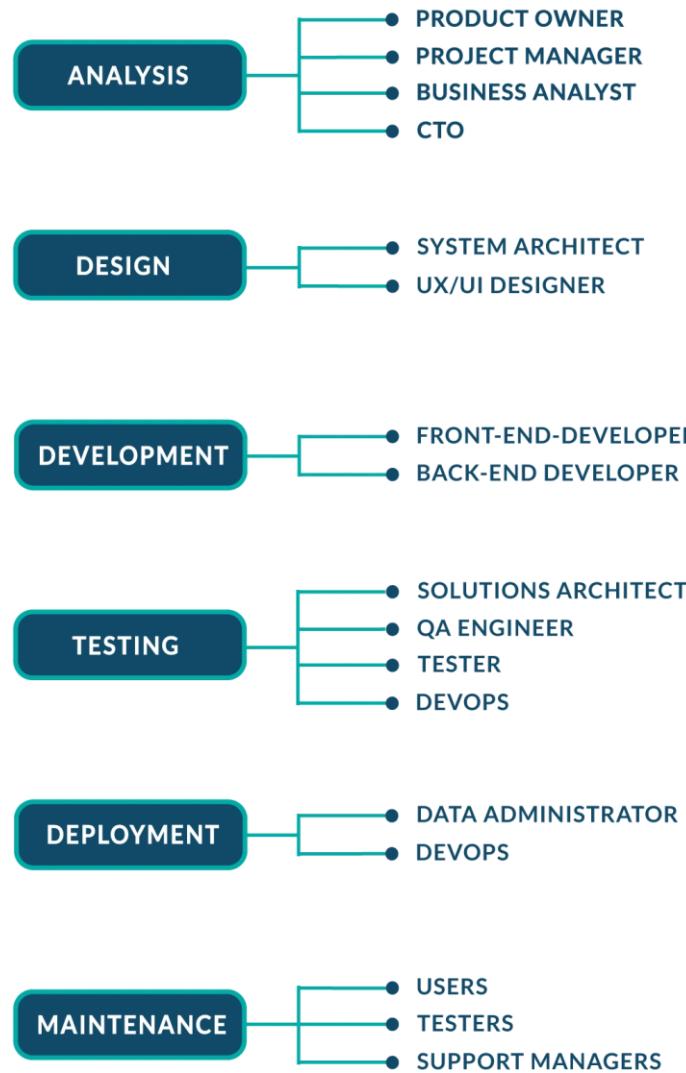
- An evaluation of the reasons behind a critical failure

Topology

- Network architecture diagram

THE SOFTWARE DEVELOPMENT LIFE CYCLE CONTINUED

SDLC Phases



WE'VE DECIDED TO MAKE
SOME SOFTWARE!

(Now WHAT?)

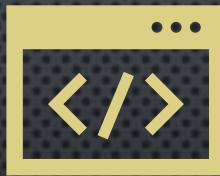


DESIGN STAGE

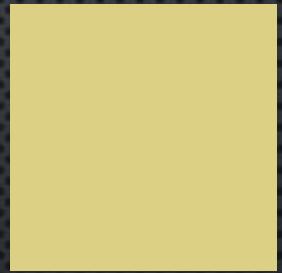
DESIGN ROLES



System architect



UX Designer



UI Designer

DESIGN ACTIVITIES



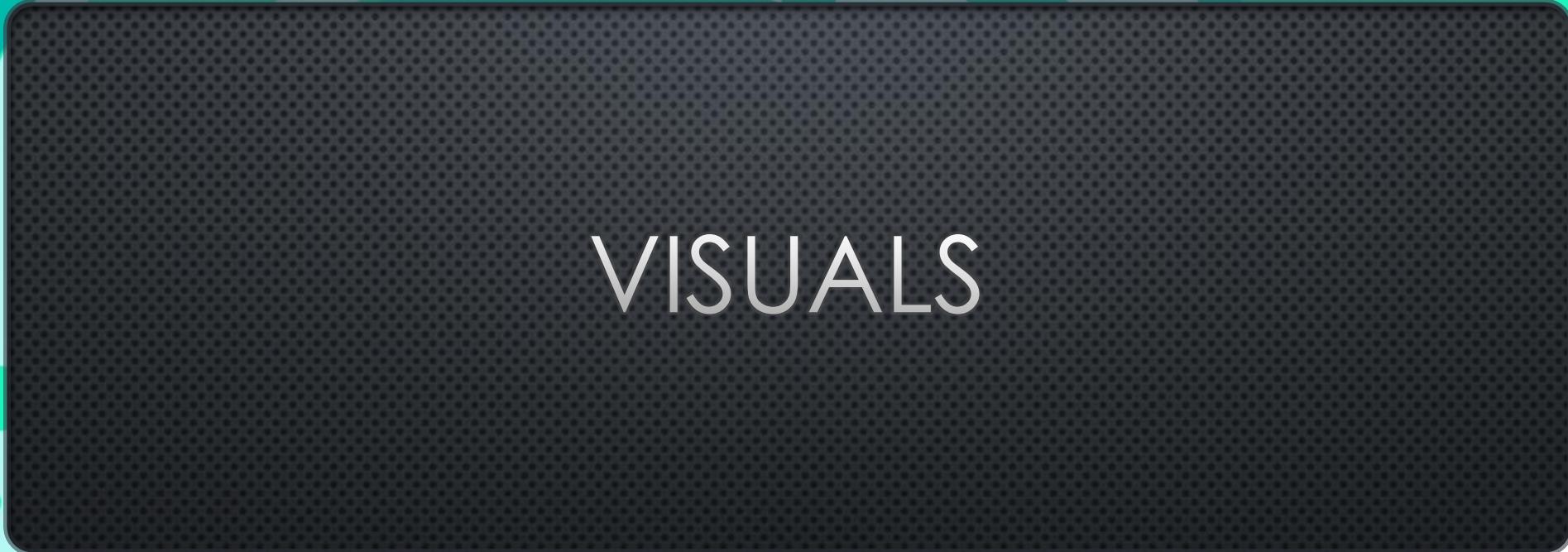
UX MOCKUPS



DATABASE
REQUIREMENTS



PROTOTYPING



VISUALS

Layout

Visual Design

Branding

Research

Usability Testing

Personalization

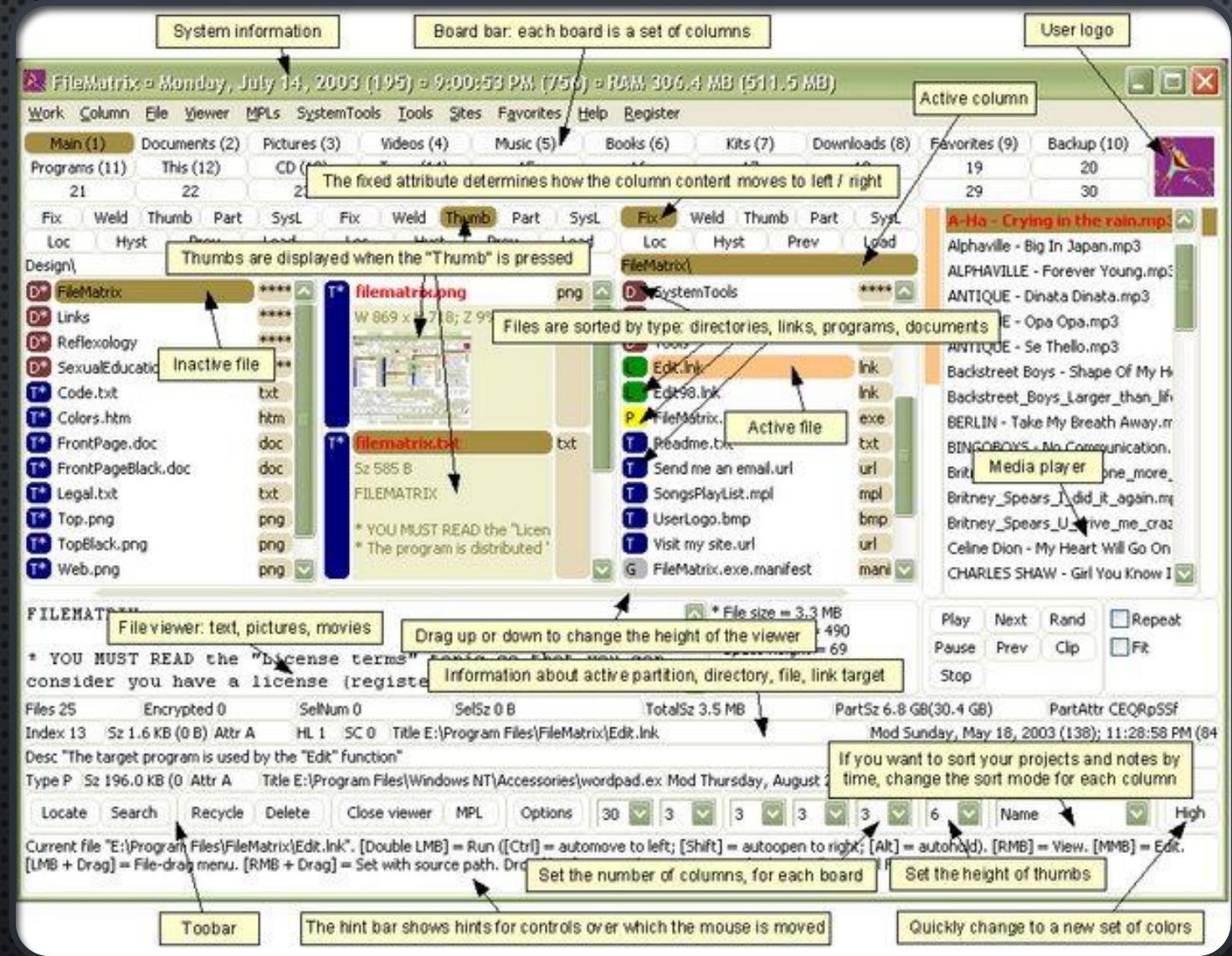


UI & UX



BRANDING

CURSED UI



MINIMALIST UI

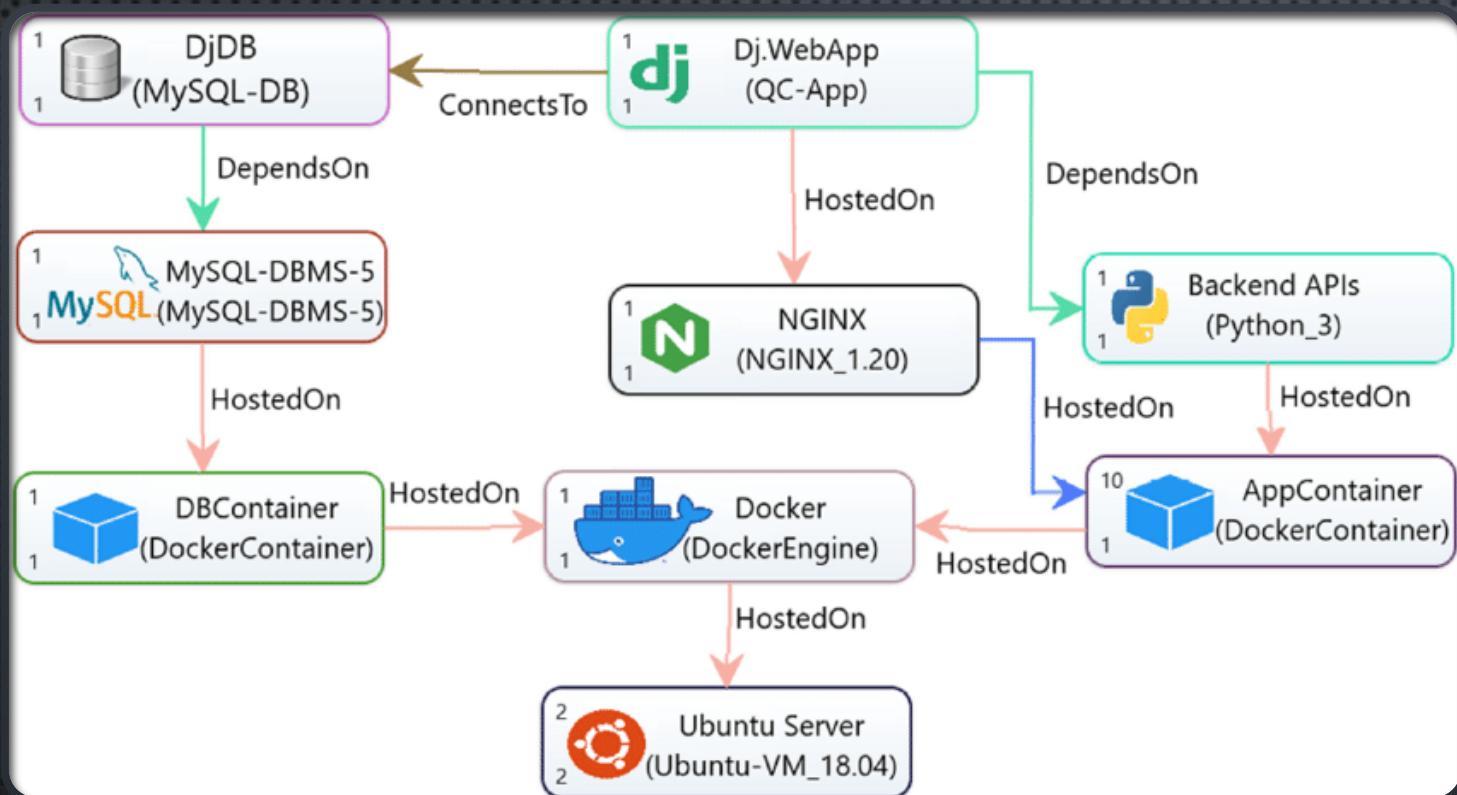
The image displays a minimalist UI dashboard for an administrator. The left sidebar features a blue header with the title "Administrator" and a user icon. Below it is a navigation menu with items: Dashboard (selected), Products, My Wallet, Transactions (with Income and Outcome sub-options), and Settings. A "Go Pro" section at the bottom left promotes "Administrator Pro" with a message about premium features and an "Upgrade now" button. The main content area has a white header with a search bar, a light/dark mode switch, and a user profile for "Jenny". The dashboard includes a "Dashboard" section with an "Earnings Overview" line chart showing monthly earnings from January to December, with a prominent peak in June. To the right is a "Product Category" donut chart with four segments: Healthcare (dark blue), Fashion (medium blue), Otomotif (light grey), and Electronic (white). Below these are sections for "All Products" (listing items like Women's Sock, Black T-shirt, and School Bag) and "Direct Message" (showing conversations with Stephanie, Cameron Williamson, Kathryn Murphy, and Robert Fox).

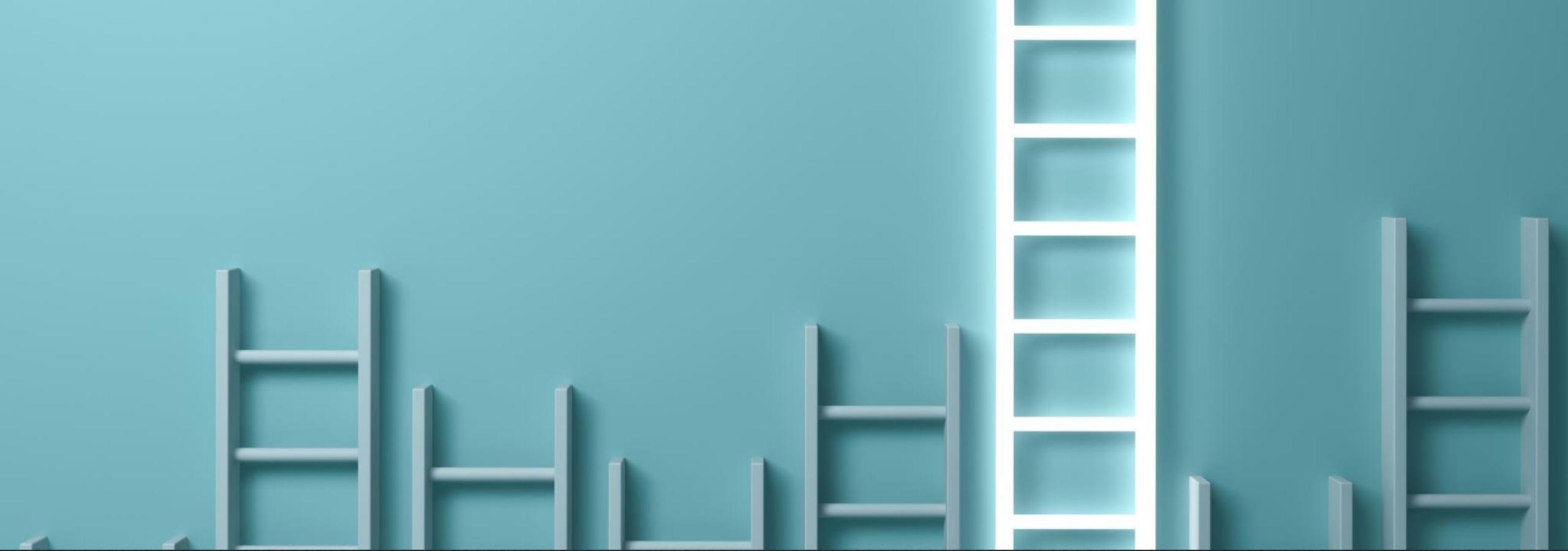


10 MINUTE BREAK

DEPENDENCIES

DEPENDENCY DIAGRAM





DEVELOPMENT STAGE



DEVELOP
PHASE
ACTIVITIES

DEVELOPMENT PHASE ACTIVITIES CONT'

- BUILDING INFORMATION SOURCES
 - BACK-END DATABASES
 - BUILD FEEDS FOR ONGOING INFORMATION TRANSFER
- BUILDING INFORMATION CONSUMERS
 - FED COMPONENTS OF APP

CONSIDERATION: PUSH, OR
PULL?

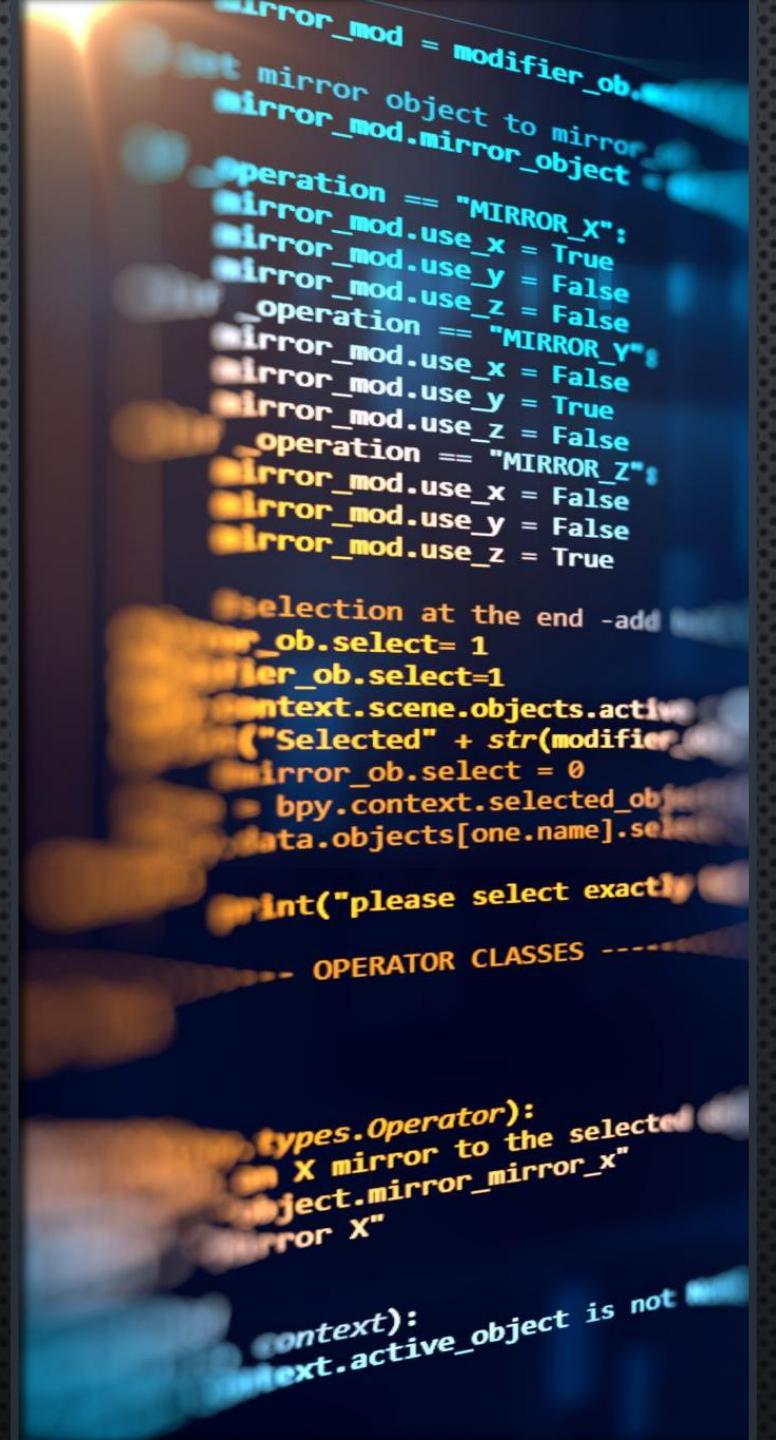
DEVELOPER ROLES

Front-End
Developer

Back-End
Developer

FRONT-END DEVELOPERS

- DEAL WITH UI/UX PROBLEM SOLVING
 - WORK WITH VISUAL PROGRAMMING LANGUAGES
- DESIGN INTEGRATION MODULES TO ATTACH TO BACK-END INFORMATION SOURCES

A photograph showing a person's hands pointing at a computer monitor. The monitor displays a block of Python code. The code appears to be a script for a 3D modeling application, likely Blender, dealing with object mirroring. It includes logic for different mirror operations (X, Y, Z) and handles selection of objects. The background is dark, and the code is written in white and yellow text.

```
mirror_mod = modifier_obj
# mirror object to mirror
mirror_mod.mirror_object

operation == "MIRROR_X":
    mirror_mod.use_x = True
    mirror_mod.use_y = False
    mirror_mod.use_z = False

operation == "MIRROR_Y":
    mirror_mod.use_x = False
    mirror_mod.use_y = True
    mirror_mod.use_z = False

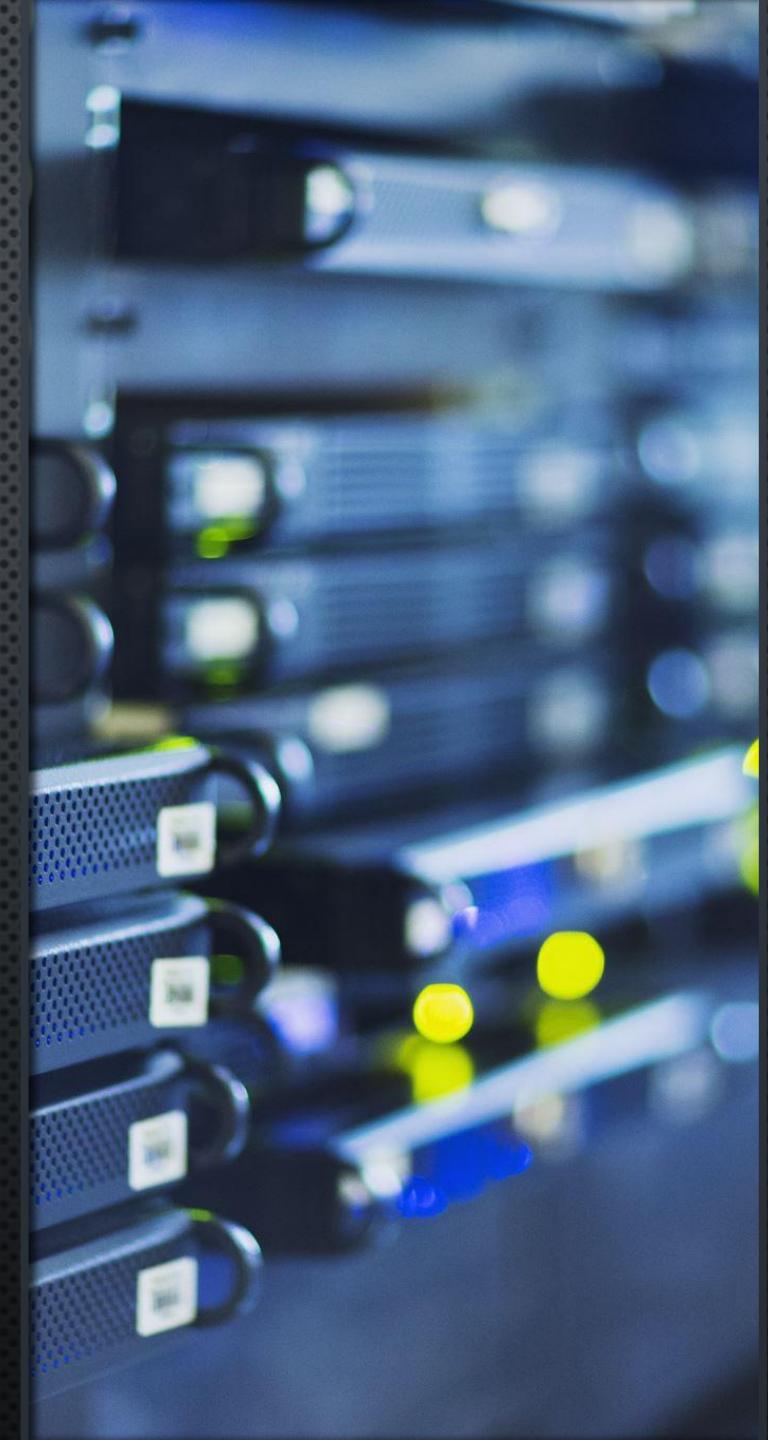
operation == "MIRROR_Z":
    mirror_mod.use_x = False
    mirror_mod.use_y = False
    mirror_mod.use_z = True

selection at the end -add
    ob.select= 1
    mirror_ob.select=1
    context.scene.objects.active
        ("Selected" + str(modifier))
    mirror_ob.select = 0
    bpy.context.selected_objects
    data.objects[one.name].se
    print("please select exact
    - OPERATOR CLASSES -->

types.Operator):
    X mirror to the selected
    object.mirror_mirror_x"
    or X"
context):
    context.active_object is not
```

BACK-END DEVELOPERS

- WORK WITH DATA DISTRIBUTION
 - DATABASE ADMINISTRATORS
 - SYSTEM ENGINEERS
- AVAILABILITY IS KEY!
- ARE DATA SCIENTISTS NEEDED?



TESTING PHASE

THE MOST IMPORTANT STAGE?

TESTING ROLES

Solutions Architect

Quality Assurance Engineer

Software Tester

DEVOPS

QUALITY ASSURANCE

- VALIDATES THAT SPECS ARE BEING MET ACCORDING TO REQUIREMENTS PUT FORTH
- CAN CONDUCT “ROOT CAUSE ANALYSIS” WHEN SOMETHING GOES WRONG

SECURITY TESTING

- PENETRATION TESTING
- DEPENDENCY ANALYSIS
 - SOFTWARE BILL OF MATERIALS (SBOM)
- STATIC CODE ANALYSIS
- FUZZING

FUZZ TESTING

- RANDOMIZED INPUT TESTING

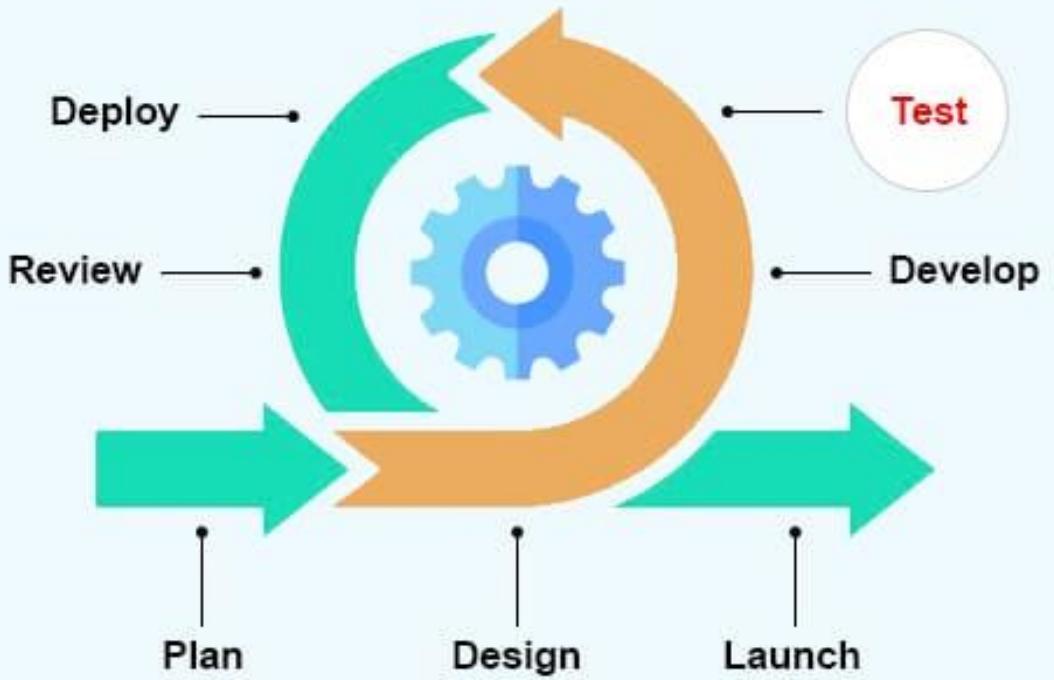


APPLICATION LIFECYCLE MANAGEMENT (ALM)

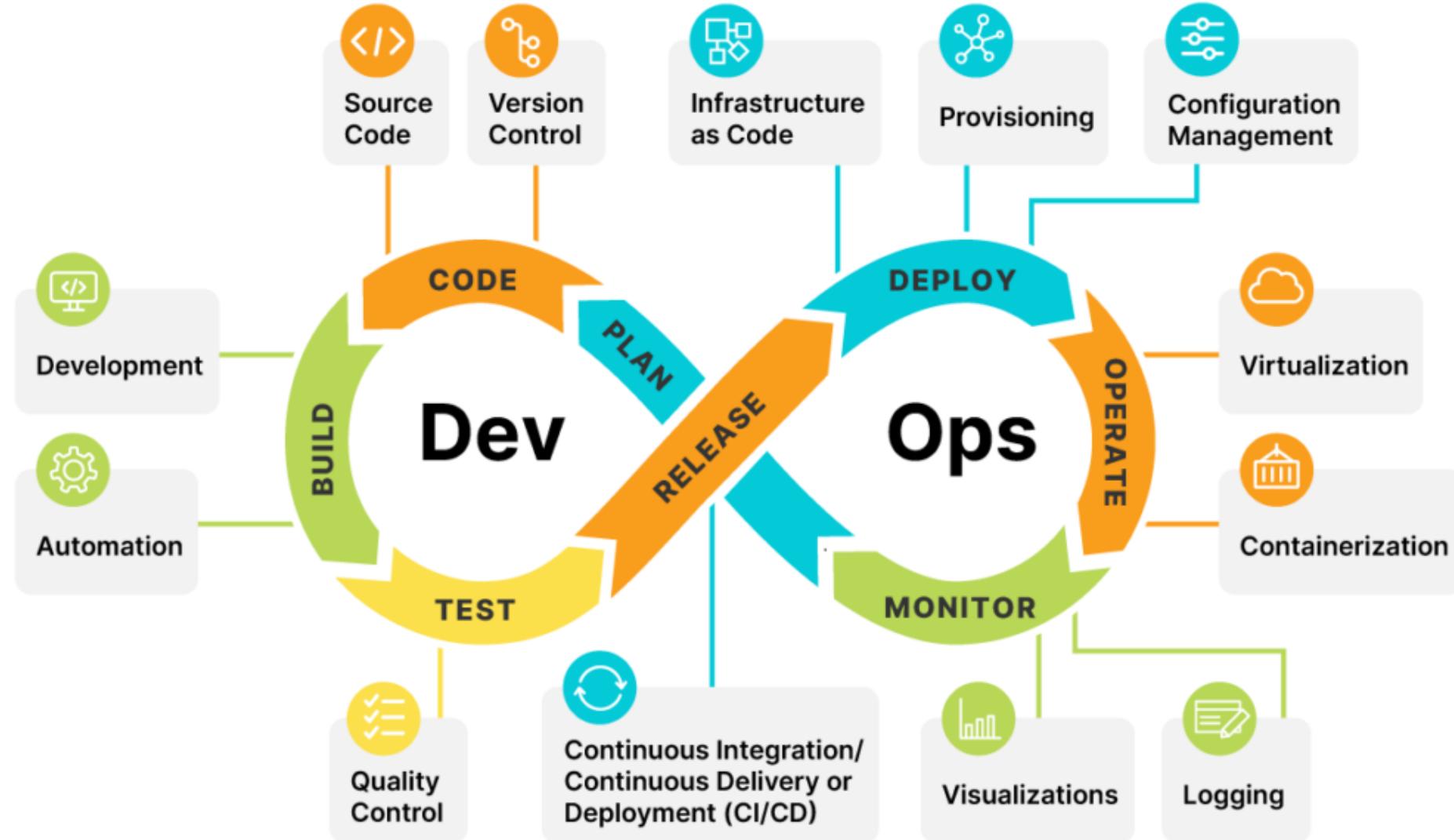


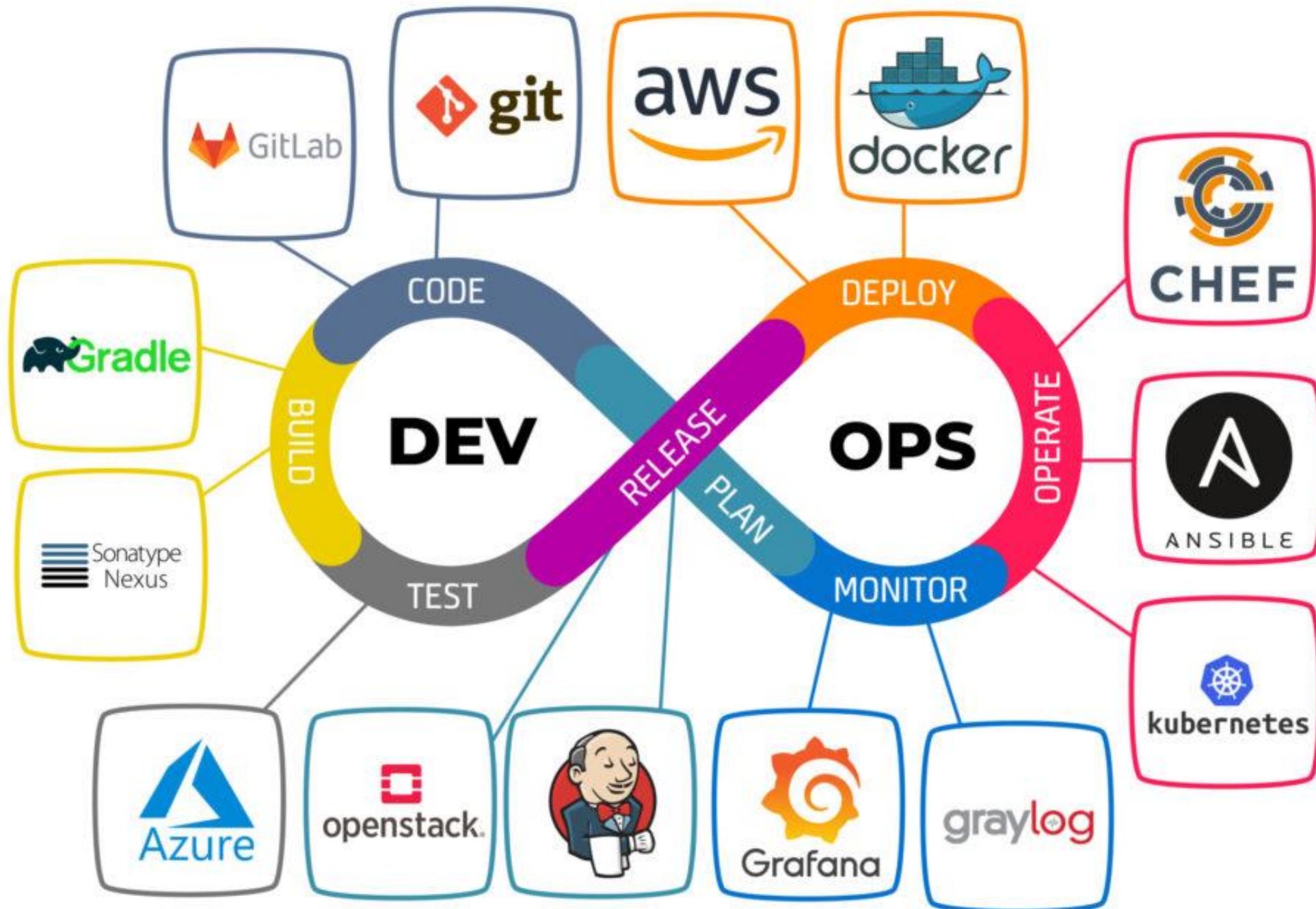
10 MINUTE BREAK

WHAT IS DEVOPS??

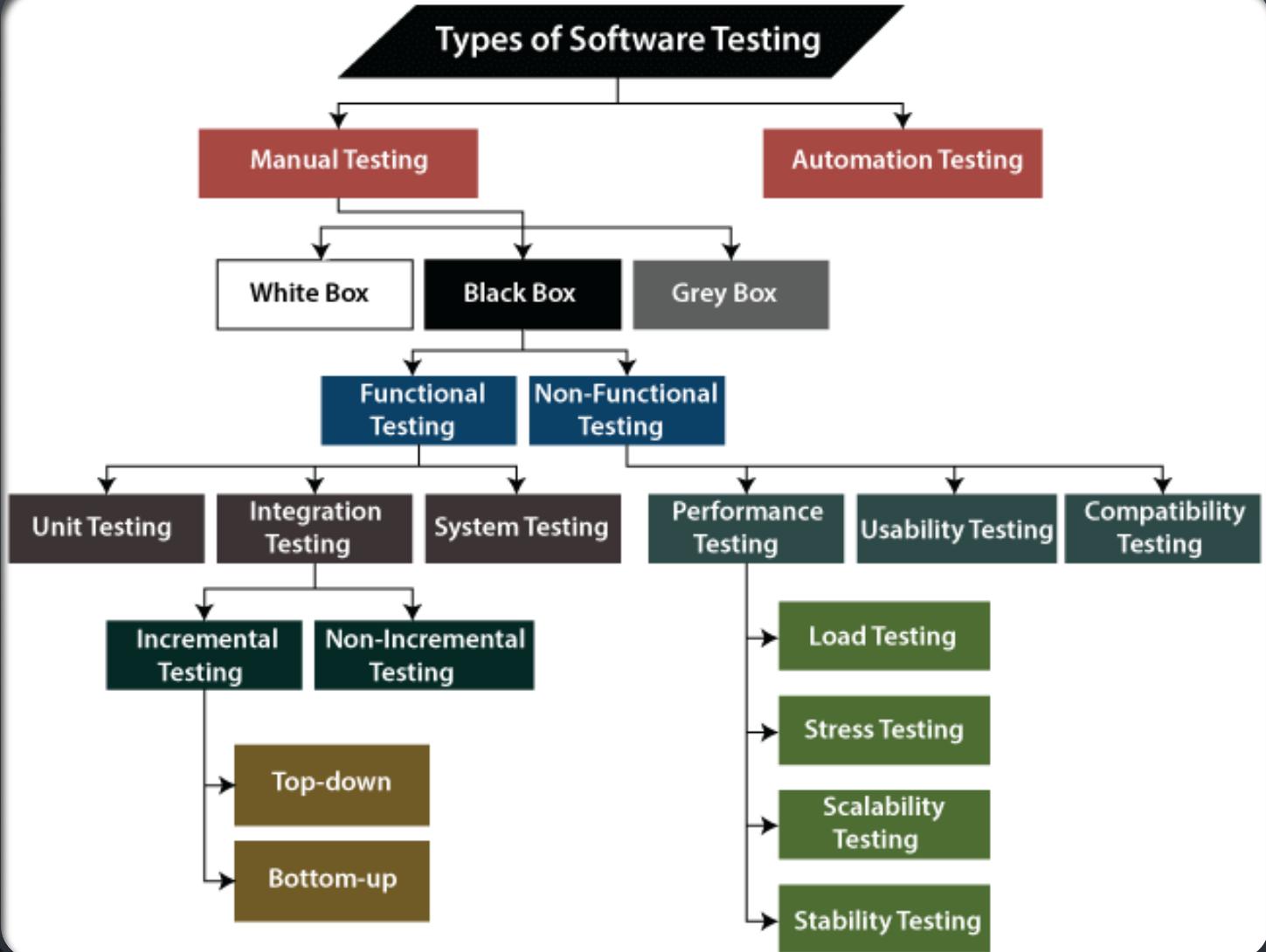


A DIFFERENT
WAY TO
LOOK AT THE
SDLC





TESTING STAGE ACTIVITIES



FUNCTIONAL VS NON- FUNCTIONAL TESTING

Functional

- x Unit testing
- x Integration testing
- x Sanity testing
- x System testing
- x Smoke testing
- x Interface testing
- x Regression testing
- x Acceptance testing

Non- Functional

- x Performance testing
- x Load testing
- x Stress testing
- x Security testing
- x Volume testing
- x Compatibility testing
- x Reliability testing
- x Usability testing
- x Compliance testing
- x Recovery testing
- x Localization testing

Black box testing

Testers do not know much how the product is built. test the product as a end user.

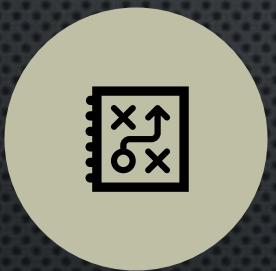
White box testing

Internal perspective of a system.
Mainly the code structure.
Happens at unit level.

Grey box testing

Testers have partial information of the product.
Helps find bugs, clients are unaware of.

WHY IS TESTING SO IMPORTANT?



PRE-RELEASE



EASY TO FIX
PROBLEMS FOUND

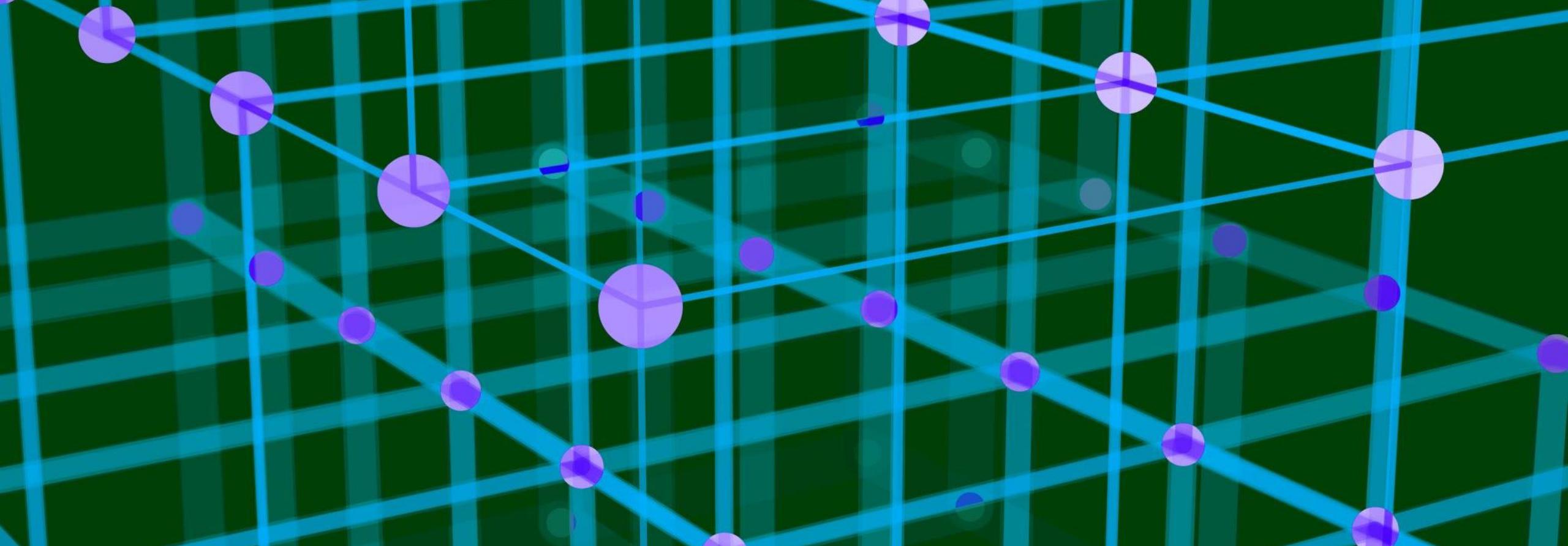


DISCOVERY OF
MISSING PIECES



REVIEW
ASSUMPTIONS

OUTCOMES



DEPLOYMENT PHASE

DEPLOYMENT QUESTIONS

- HOW WILL OUR USERS GET THIS APP?
 - APP STORE?
 - DIRECT DOWNLOAD/SIDELOADING?
- HOW WILL USERS GET FUTURE UPDATES?

DEPLOYMENT ROLES

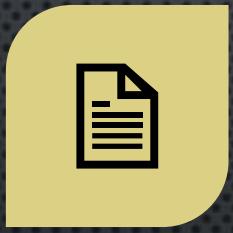
- DATA ADMINISTRATOR
- DEVOPS



DEPLOYMENT ACTIVITIES



FINAL TESTING STEPS



INITIAL
DOCUMENTATION
PHASE



MAKING SOFTWARE
PACKAGE AVAILABLE
TO CUSTOMERS



CUSTOMIZATION AND
DEVELOPMENT
TESTING



INSTALLATION TO
STAGING SERVERS



DOCUMENTATION
DOCUMENTATION
DOCUMENTATION

The screenshot shows the Confluence software interface. The top navigation bar includes 'Confluence', 'Home', 'Recent', 'Spaces', 'People', 'Apps', 'Templates', a 'Create' button, and a search bar. The left sidebar for the 'CleverApp' space contains links for 'Overview', 'Blog', 'Space Settings', 'APPS' (with 'Orderly Databases' and 'Workflows'), 'SPACE SHORTCUTS' (with 'Add shortcut'), 'Pages' (which is expanded to show 'CleverApp Main Page' with sub-links 'Getting Started', 'Help Resources', 'Sales Automation', 'Sales Forecasting', and 'Archived pages'), and a 'Document toolbox' with various icons.

CleverApp Main Page

Created by Maggie · Last updated: just a moment ago by Aziza · Version comment · 2 min read · Add Workflow
17 people viewed · Scroll Viewport · Show more

Automate and scale your sales processes with CleverApp. Learn how to get the most out of CleverApp. What is the product? Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Augue neque gravida in fermentum et sollicitudin ac orci. Lectus urna quis Convallis convallis Tellus id interdum elit laoreet. Magnis dis

Parturient montes nascetur ridiculus. Libero id faucibus nisl tincidunt. In ante metus dictum at tempor. Mauris pharetra et ultrices neque ornare aenean euismod elementum. Tincidunt augue interdum velit euismod in pellentesque massa placerat quis. Iaculis urna id volutpat lacus. Commodo ullamcorper a lacus vestibulum sed arcu non odio euismod.

What does the CleverApp do? It does the following tasks: **Tellus id interdum**, **Velit laoreet** and **Magnis dis**. Parturient montes nascetur ridiculus. Libero id faucibus nisl tincidunt. In ante metus dictum at tempor. Mauris pharetra et ultrices neque ornare aenean euismod elementum. For sales people, Tincidunt augue interdum velit euismod in pellentesque massa placerat quis. Iaculis urna id volutpat lacus. Commodo ullamcorper a lacus vestibulum sed arcu non odio euismod.

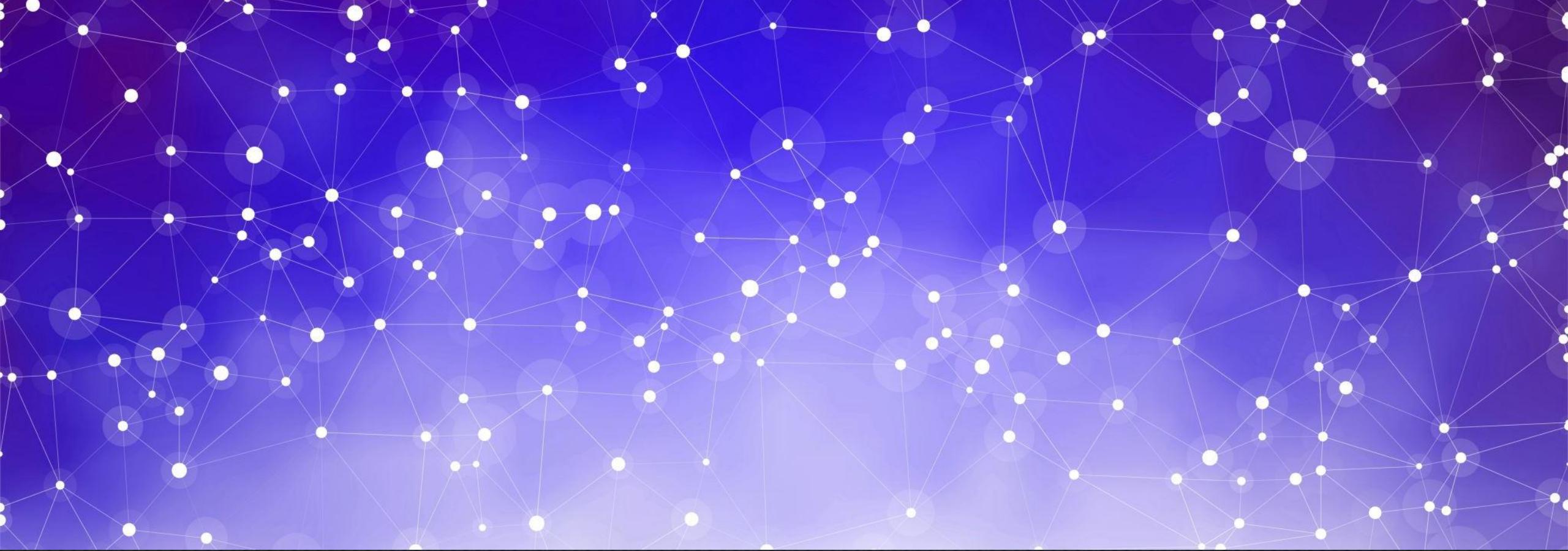
Use cases: Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Augue neque gravida in fermentum et sollicitudin ac orci. Lectus urna quis Convallis convallis Tellus id interdum Velit laoreet Magnis dis Mauris pharetra.

Parturient montes nascetur ridiculus. Libero id faucibus nisl tincidunt. In ante metus dictum at tempor. Mauris pharetra et ultrices neque ornare aenean euismod elementum. Tincidunt augue interdum velit euismod in pellentesque massa placerat quis. Iaculis urna id volutpat lacus. Commodo ullamcorper a lacus vestibulum sed arcu non odio euismod.

TOOL: CONFLUENCE

USER ACCEPTANCE TESTING



The background of the slide features a complex network of white dots connected by thin white lines, set against a gradient background that transitions from dark purple at the top to black at the bottom.

MAINTENANCE PHASE

MAINTENANCE ROLES



Users



Testers



Support managers



Field Support Engineers

MAINTENANCE ACTIVITIES

- BREAK/FIX
- PRODUCT SUPPORT
- DEMONSTRATION/FIELD SUPPORT



COMMUNICATION



WHERE ARE OUR “FRONT DOORS”?

THEN WHAT?



THIS IS THE SONG
THAT DOESN'T END

SESSION REVIEW

QUESTION OR
CLARIFICATIONS?





A large, semi-transparent dark gray rectangular box is positioned in the center of the slide. Inside this box, the text "NEXT SESSION PREVIEW" is displayed in a bold, white, sans-serif font.

NEXT SESSION PREVIEW

SEE YOU NEXT TIME!