



# Mastering the AI Toolkit

**Group Presentation**

**June 2025 :**

- Nthabeleng Mochaoa – Theoretical Analysis
- Edwin Maina – Code Completion & Copilot Analysis
- Wandile Ndlovu – Automated Testing with AI
- Betty Nuguna – Predictive Analytics
- Innocent Nyalik – Ethics & Report Compilation





# Part 1: Theoretical Analysis

- AI tools like GitHub Copilot reduce dev time, but rely heavily on context
- Supervised vs. Unsupervised learning: Supervised excels in labeled bug detection
- UX personalization must avoid bias in demographic and behavior targeting
- AIOps improves software deployment by detecting issues and automating rollbacks



# Part 2: Code Completion with AI

**Task** Sort list of dictionaries using GitHub Copilot

- Manual version created and compared
- Copilot was fast and context-aware
- Manual code offered better readability and control



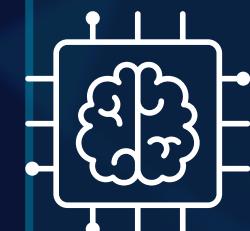


# Part 3: AI-Assisted Test Automation



## Tool Selenium IDE

- Test case: Valid & Invalid login scenarios
- AI enabled faster test creation and higher coverage
- Manual testing was slower and prone to missed cases





# Part 4: Predictive Analytics

**Dataset:** Breast Cancer (Kaggle)

- Preprocessed and modeled using Random Forest
- Goal: Predict issue priority
- Accuracy and F1-score evaluated in Jupyter Notebook

# Part 5: Ethical Reflection

**Dataset bias:** Underrepresentation of age, gender, and ethnicity

- Risk: Workplace or healthcare decisions may be unfair
- Solution: IBM AI Fairness 360
- Tools: Reweighting & Disparate Impact Remover for fair outcomes





# Bonus Task: AI CodeRefine

**Purpose:** Automates code review and improves quality

- Learns from team-specific coding patterns
- Uses Codex, NLP, anomaly detection, and RL
- Reduces manual review load and flags logic or security issues





# Thank You

FOR YOUR ATTENTION

**Tools Used:** GitHub Copilot, Selenium IDE, Scikit-learn, IBM AlF360, CodeBERT

**PROJECT:** MASTERING THE AI TOOLKIT

**PRESENTED BY:** [CODEINTELLECTS]

