Debugging the Mind: Cognitive Biases in Tech Decision-Making

1. **Confirmation Bias**
    - **Definition**: Favoring info that confirms existing beliefs.
    - **Impacts**: Flawed testing, biased data, resistance to new tech.
    - **Examples**:
        - Code Reviews: Overlooking flaws that align with preferences.
        - Project Estimation: Sticking to optimistic timelines.
        - Tech Selection: Preferring familiar cloud providers.
        - Bug Investigation: Fixating on specific causes
    - **Mitigation**:
        - Devil's Advocate roles.
        - Diversify info sources.
        - Practice Hypothesis Rotation.
        - Pre-mortem analyses.
        - A/B testing.
        - Encourage skepticism.
2. **Anchoring Bias**
    - **Definition**: Overreliance on initial info.
    - **Examples**:
        - Sticking to initial estimates.
        - Budgeting based on past projects.
        - Judging performance from initial data.
    - **Mitigation**:
        - Multiple reference points.
        - Blind estimates.
        - Range estimates.
        - Historical data analysis.

3. **Dunning-Kruger Effect**
    - **Definition**: Overestimating competence due to limited knowledge.
    - **Examples**:
        - Underestimating complexity.
        - Overestimating management ability.
        - Ignoring the need for training.
    - **Mitigation**:
        - Continuous learning.
        - Self-assessment.

Practical Tools and Techniques

1. **OODA Loop (John Boyd)**
    - **Example**: System outage.
        - Observe: Monitor alerts.
        - Orient: Analyze data.
        - Decide: Choose a fix.
        - Act: Implement solution.
2. **Six Thinking Hats (Edward de Bono)**
    - White Hat: Facts – data.
    - Red Hat: Emotions – intuition.
    - Black Hat: Caution – risks.
    - Yellow Hat: Benefits – advantages.
    - Green Hat: Creativity – alternatives.
    - Blue Hat: Process – strategy.
    - Example: Evaluating a new tech stack.
3. **WRAP Framework (Chip & Dan Heath)**
    - Widen Options: Avoid narrow framing.
    - Reality-Test Assumptions: Test beliefs.
    - Attain Distance: Consider long-term impacts.
    - Prepare to Be Wrong: Plan for uncertainty.
    - Example: Choosing to build or adopt a tool.