Testing

• Human testing
• White Box testing
• Black Box testing

White Box Testing

1. Statement Coverage
2. Decision Coverage
3. Condition Coverage
4. Decision/Condition Coverage
5. Multiple Condition/Decision Coverage

White Box Testing

Example code:

IF (A > 1) AND (B < 0)
 THEN X = X / A
IF (A == 2) OR (X > 1)
 THEN X = X + 1

White Box Testing

• Statement Coverage
  – Each statement must be executed
  – NECESSARY condition for testing but not SUFFICIENT

White Box Testing

• Decision Coverage
  – Both the TRUE and FALSE outcome of a decision must be executed
  – ALL statements must be executed

White Box Testing

Test Cases

A =
B =
X =
White Box Testing

- **Condition Coverage**
  - ALL outcomes (TRUE and FALSE) of each condition must be tested
  - ALL statements must be executed

White Box Testing

- **Decision/Condition Coverage**
  - Each outcome of each condition must be tested
  - Each outcome of each decision must be tested
  - Each statement must be executed

White Box Testing

- **Multiple Condition Coverage**
  - All possible combinations of outcomes must be tested
  - All outcomes of all conditions must be tested
  - All outcomes of all decisions must be tested
  - All statements must be executed

White Box Testing

```
B < 0
A = 2
X = 1
X = X / A
X++
```

```
T
F

A > 1
T
F

A = 2
T
F
```

```
X = X/A
```

```
F
T
```

```
X = 1
F
T
```

```
X++
```