

## Annotations for Melon.java

```
1  class Melon {
2      final int i;
3
4      Melon(boolean b) {
5          if (b)
6              i = 3;
7      }
8  }
```

## Compiler Output

```
Melon.java:7: error: variable i might not have been initialized
    }
    ^
1 error
```

## Questionnaire

1. Have you ever encountered this error message before?

Yes [ ] No [ ] Unsure

2. How confident are you about the accuracy of your explanation for this error message?

[ ] Not at all confident

[ ] Somewhat confident

[ ] Moderately confident

[ ] Highly confident

Completely confident

## Annotations for Melon.java

```
1  class Melon {
2      final int i;
3      Melon(boolean b) {
4          if (b)
5              i = 3;
6          }
7      }
8  }
```

*Handwritten notes:*  
- All global variables should have values  
-  $final\ i = 0$  (circled in red)

## Compiler Output

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    }
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## Annotations for Melon.java

```
1  class Melon {  
2      final int i; = 0  
3  
4      Melon(boolean b) {  
5          if (b)  
6              i = 3;  
7          } else?  
8  }
```

## Compiler Output

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2      final int i;
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```
1  class Melon {  
2      final int i;  
3  
4      Melon(boolean b) {  
5          if (b) {  
6              i = 3;  
7          }  
8  }
```

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## Annotations for Melon.java

```
1 class Melon {  
2     final int i; = 0? 0 may not be default value  
3  
4     Melon(boolean b) {  
5         if (b) i = ?  
6             i = 3;  
7     }  
8 }
```

## Compiler Output

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## Annotations for Melon.java

```
1 class Melon {
2     final int i;
3     int i;
4     Melon(boolean b) {
5         if (b)
6             i = 3;
7     }
8 }
```

*should be declared here* (with arrow pointing to `final int i;`)

*i = 3* (with arrow pointing to `i = 3;`)

*if anything* (with arrow pointing to `i = 3;`)

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## Annotations for Melon.java

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2      final int i;
3
4      Melon(boolean b) {
5          if (b)
6              i = 3;
7      }
8  }
```

*what if false? i never initialized*

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## Annotations for Melon.java

```
1 class Melon {
2     final int i;
3     int current;
4     Melon(boolean b) {
5         if (b)
6             i = 3;
7         } else
8             current = J
```

*Handwritten annotations:*

- Underline under `final int i;` on line 2.
- Handwritten `final int i = 3;` on line 3, with an arrow pointing to the `final` keyword.
- Handwritten `int current;` on line 4.
- Handwritten `current = i` on line 5.
- Handwritten `i is unchangeable` on line 6, with an arrow pointing to the `i` in the code.
- Handwritten `or else` on line 7.
- Handwritten `else` on line 8.
- Handwritten `current = J` on line 8.

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2      final int i;  
3  
4      Melon(boolean b) {  
5          if (b)  
6              i = 3;  
7          }  
8  }
```

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## Annotations for Melon.java

```
1  class Melon {  
2      final int i; = /  
3  
4      Melon(boolean b) {  
5          if (b) TRUE  
6              i = 3;  
7      } FALSE  
8  }
```

## Compiler Output

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    }  
    .  
1 error
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## Annotations for Melon.java

```
1  class Melon {
2      final int i;
3
4      Melon(boolean b) { if b = true | false
5          if (b)
6              i = 3;
7      }
8  }
```

*i = 3*      *i = ?*

## Compiler Output

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## Annotations for Melon.java

```
1  class Melon {
2      final int i;
3
4      Melon(boolean b) {
5          if (b)
6              i = 3;
7      }
8  }
```

*Handwritten annotations:*  
A red arrow points from the word "int" in line 2 to the word "int" in line 4. The word "int" is written in red next to the arrow.

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Melon.java:7: error: variable i might not have been initialized
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## Annotations for Melon.java

```
1  class Melon {
2      final int i;
3
4      Melon(boolean b) {
5          if (b)
6              i = 3;
7      }
8  }
```

*Handwritten annotations:*  
Line 7: } 00,0  
Line 8: } 3  
A horizontal line is drawn between lines 7 and 8, with "i = 3;" written below it.

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Melon.java:7: error: variable i might not have been initialized
    }
    .
1 error
```

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## Annotations for Melon.java

1 class Melon {

2 final int i;

3

4 Melon(boolean b) {

5 if (b)

6 i = 3;

7 }

8 }

*if not executed, b/c b is false  
i = ?*

## Compiler Output

```
Melon.java:7: error: variable i might not have been initialized
    }
```

1 error

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Completely confident

## Annotations for Melon.java

```
1  class Melon {  
2      final int i = ↓  
3  
4      Melon(boolean b) {  
5          if (b)  
6              i = 3;  
7      }  
8  }
```

## Compiler Output

```
Melon.java:7: error: variable i might not have been initialized  
    }  
    ^  
1 error
```

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## Annotations for Melon.java

```
1  class Melon {
2      final int i;
3
4      Melon(boolean b) {
5          if (b) true
6              i = 3;
7          } else
8              i == null
9      }
```

## Compiler Output

```
Melon.java:7: error: variable i might not have been initialized
    }
    ^
1 error
```

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## Annotations for Melon.java

```
1  class Melon {
2      final int i; must be initialized
3
4      Melon(boolean b) {
5          if (b)
6              i = 3;
7          } if(!b)
8      } i = ?
```

## Compiler Output

```
Melon.java:7: error: variable i might not have been initialized
    }
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1 error
```

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## Annotations for Melon.java

*b = false*  
*b = true*

```
1 class Melon {  
2     final int i; ← needs to be init..  
3  
4     Melon(boolean b) {  
5         if (b)  
6             i = 3; i = 3;  
7     }  
8 }
```

## Compiler Output

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Melon.java:7: error: variable i might not have been initialized  
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## Annotations for Melon.java

```
1  class Melon {  
2      final int i; 0  
3  
4      Melon(boolean b) {  
5          if (b)  
6              i = 3;  
7      }  
8  }
```

## Compiler Output

Melon.java:7: error: variable i might not have been initialized

}  
1 error

## Questionnaire

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## Annotations for Melon.java

```
1 class Melon {
2     final int i;
3
4     Melon(boolean b) {
5         if (b)
6             i = 3;
7     }
8 }
```

*constant must implement when first declaring*  
*should be initialized*

## Compiler Output

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    }
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1 error
```

## Questionnaire

- Have you ever encountered this error message before?  
 Yes [ ] No [ ] Unsure
- How confident are you about the accuracy of your explanation for this error message?  
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## Annotations for Melon.java

```
1 class Melon {
2     final int i;
3
4     Melon(boolean b) {
5         if (b)
6             i = 3;
7     }
8 }
```

*Handwritten annotations:*

- A red box highlights the `if (b)` block.
- Red text: `b, false` and `not be initialized` with an arrow pointing to the `i = 3;` line.
- Red text: `i = ?` below the `i = 3;` line.
- Green text: `b = true` and `i = 3` to the right of the `if` block.

## Compiler Output

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```

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## Annotations for Melon.java

```
1  class Melon {  
2      final int i; = ?  
3  
4      Melon(boolean b) {  
5          if (b)  
6              i = 3;  
7      }  
8  }
```

Handwritten annotations: A box around 'final int i;' with an arrow pointing to 'i = 3;' and another arrow pointing to 'i = ?' below the closing brace of the constructor. A question mark is also written next to the 'final int i;' declaration.

## Compiler Output

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1 error

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## Annotations for Melon.java

```
1  class Melon {
2      final int i;
3
4      Melon(boolean b) {
5          > if (b)
6              i = 3;
7          }
8      }
```

*not declared*

*> conditionally initialized*

## Compiler Output

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```
1 class Melon {
2     final int i;
3
4     Melon(boolean b) {
5         if (b)
6             i = 3;
7     }
8 }
```

*Handwritten annotations:*

- Underline under `final int i;` with a green line.
- Handwritten `int` in green next to the underline.
- Handwritten `if it was false` in green next to the `if (b)` block.
- Handwritten `! = ?` in green next to the closing brace of the `Melon` constructor.

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## Annotations for Melon.java

```
1  class Melon {  
2      final int i; →  
3  
4      Melon(boolean b) {  
5          if (b) b = false  
6              i = 3;  
7      }  
8  }
```

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1 error
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## Annotations for Melon.java

```
1  class Melon {  
2      final int i; =?  
3  
4      Melon(boolean b) {  
5          if (b)  
6              i = 3;  
7          } else i = ?  
8  }
```

## Compiler Output

```
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    }  
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1 error
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## Annotations for Melon.java

```
1  class Melon {
2      final int i;
3
4      Melon(boolean b) {
5          if (b)
6              i = 3;  (i) i is final - cannot assign
7          }
8  }
```

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