

# Semantics Test Case Documentation

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## 1 Valid Cases

### 1.1 Case 1

```
{  
  string a  
  a = "this is a string"  
  print(a)  
}$
```

### 1.2 Case 2

```
{  
  boolean a  
  a = false  
  print((a == true))  
  print((a == false))  
  print(a)  
  if (a == false) {  
    a = true  
  }  
  print(a)  
}$
```

### 1.3 Case 3

```
{  
  string s  
  int a  
  a = 1  
  {  
    s = "meow"  }
```

```

        int a
        a = 2
        print(a)
    }
    {
        while (a != 5) {
            print(a)
        }
        print(s)
    }
}

```

#### 1.4 Case 4

```

{
    int x
    int y
    y = 3
    x = y
    if (x == y) {
        print("hooray")
    }
}

```

#### 1.5 Case 5

```

{
    print("hello")
    int a
    a = 3
    print(a)
}
{
    boolean b
    b = false
    print(b)
}

```

## 2 Valid but with Warning Cases

```

{
    print("i love compilers")
    int a
    a = 2
    string s
}

```

```
    s = "ha"  
}$
```

Semantics Warning: Variable a has been initialized but not used on line 4 index 8

Semantics Warning: Variable s has been initialized but not used on line 6 index 11

```
{  
    int x  
    int y  
    x = y  
    if (x == y) {  
        print("hooray")  
    }  
}
```

```
}$
```

Semantics Warning: Variable y has been declared but not initialized on line 3 index 8

```
{  
    int a  
    print(a)  
    a = 3  
}$
```

Semantics Warning: Variable a has been used before being initialized on line 3 index 8

### 3 Invalid Cases

```
{  
    print("hello")  
    int a  
    a = 3  
}$  
{  
    int b  
    b = false  
}$
```

Semantics Error: Type Assigned [boolean] does not match declared type [int] for variable b on line 8 index 2

Throws error because b is declared at int and is assigned boolean.

```
{
  int a
  print(a)
  b = 3
}$
```

Semantics Error: Use of Undeclared Variable b on line 4 index 2  
 Throws error because b has been used but not declared.

```
{
  string a
  if (a == 3) {
    print("wrong")
  }
}$
```

Semantics Error: Type being compared to [int] does not match declared type  
 [string] for variable a on line 3 index 6