

1. Long method:

- a. Location: validations in `saveItem()` or `saveContact()` of the following classes
AddItemActivity, EditItemActivity, AddContactActivity, EditContactActivity.
- b. The code smell:

```
if (title_str.equals("")) {  
    title.setError("Empty field!");  
    return;  
}  
  
if (maker_str.equals("")) {  
    maker.setError("Empty field!");  
    return;  
}  
  
if (description_str.equals("")) {  
    description.setError("Empty field!");  
    return;  
}  
  
if (length_str.equals("")) {  
    length.setError("Empty field!");  
    return;  
}  
  
if (width_str.equals("")) {  
    width.setError("Empty field!");  
    return;  
}  
  
if (height_str.equals("")) {  
    height.setError("Empty field!");  
    return;  
}
```

- c. Potential problem: this makes the method longer and more complicated to debug if any mistakes.
- d. Solution: create a separate `validateInput()` method to address this code smell.

2. Duplicated code:

- a. Location: validations in `saveItem()` or `saveContact()` of the following classes
AddItemActivity, EditItemActivity, AddContactActivity, EditContactActivity.
- b. The code smell:

```

if (title_str.equals("")) {
    title.setError("Empty field!");
    return;
}

if (maker_str.equals("")) {
    maker.setError("Empty field!");
    return;
}

if (description_str.equals("")) {
    description.setError("Empty field!");
    return;
}

if (length_str.equals("")) {
    length.setError("Empty field!");
    return;
}

if (width_str.equals("")) {
    width.setError("Empty field!");
    return;
}

if (height_str.equals("")) {
    height.setError("Empty field!");
    return;
}

```

- c. Potential problems: need to copy the same portion of code to many classes. The code is not clean and redundant.
- d. Solution: create a separate class to handle Input validation.