

# More Sophisticated Behaviour

## Technical Support System V2.0

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Based on Ch. 5, Objects First with Java - A Practical Introduction using BlueJ, © David J. Barnes, Michael Kölling



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# Topic List

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- Recap: Technical Support System V1
- Technical Support System V2
  - Overview of the System
  - Responder class
    - Random

# Technical Support System V1

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- A console based system.
- A textual dialog system i.e. you enter text on the console and the system will provide a response.
- In this version, the system responds with the same String always:
  - “That sounds interesting. Tell me more...”

# Technical Support System V1

Problems @ Javadoc Declaration Console

<terminated> SupportSystem [Java Application] C:\Program Files\Java\jre1.8.0\_60\bin\javaw.exe (25 Jan 2016, 12:08:33)

Welcome to the DodgySoft Technical Support System.

Please tell us about your problem. We will assist you with any problem you might have. Please type 'bye' to exit our system.

> my computer is broken

That sounds interesting. Tell me more...

> really broken

That sounds interesting. Tell me more...

> help me

That sounds interesting. Tell me more...

> pleaseeeeeee

That sounds interesting. Tell me more...

> BETY

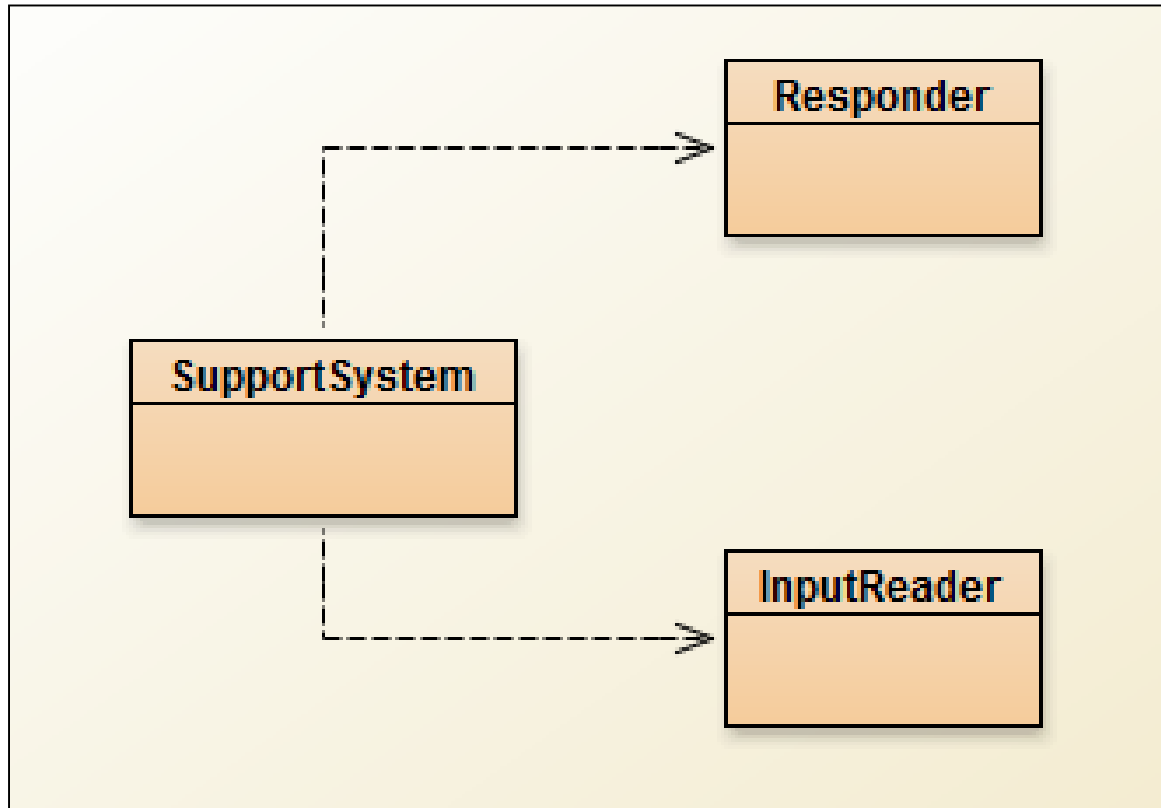
That sounds interesting. Tell me more...

> BYE

Nice talking to you. Bye...

# Class Diagram V1

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# Technical Support System V2

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- A console based, textual dialog system.
- In this version, the system provides a random response from a list of pre-defined responses e.g.:
  - "That sounds interesting. Tell me more..."
  - "I need a bit more information on that."
  - "Have you checked that you do not have a dll conflict?"
  - "That is explained in the manual. Have you read the manual?"
  - " That's not a bug, it's a feature!"
  - "Could you elaborate on that?"
  - etc.

# Technical Support System V2

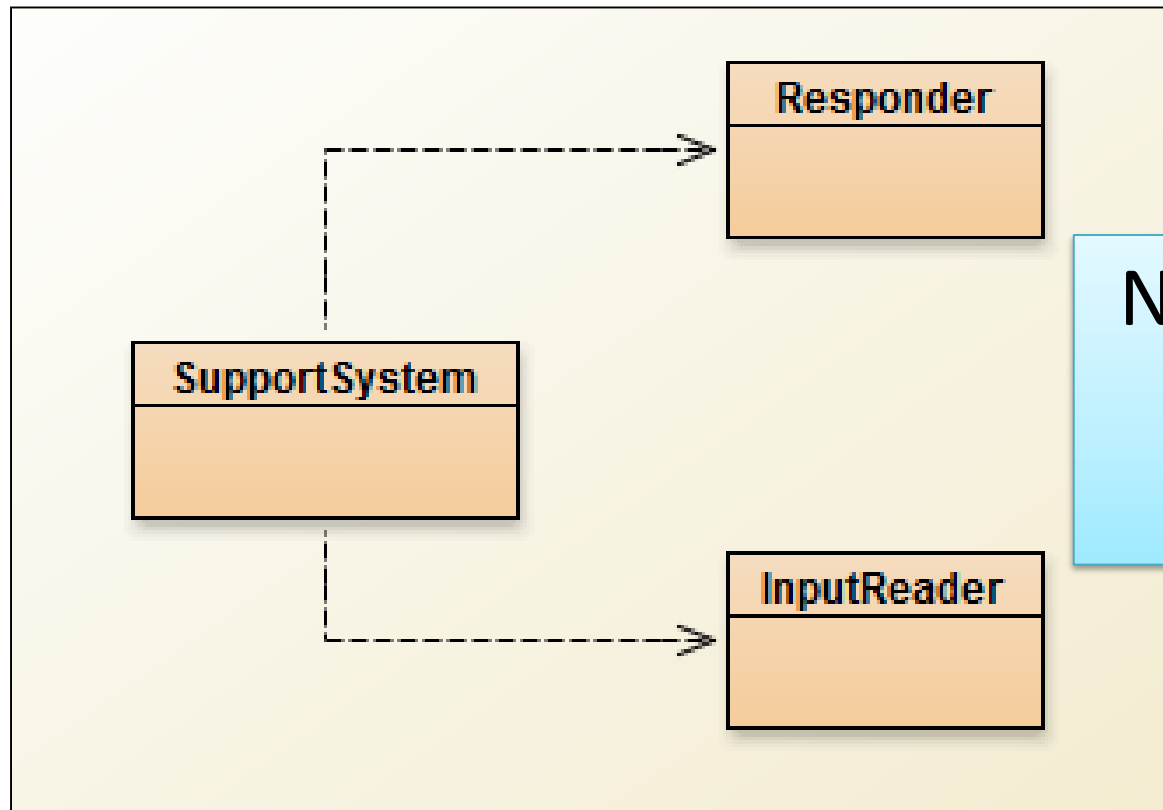
```
Problems @ Javadoc Declaration Console X
SupportSystem (1) [Java Application] C:\Program Files\Java\jre1.8.0_60\bin\javaw.exe (25 Jan 2016, 13:44:01)
Welcome to the DodgySoft Technical Support System.

Please tell us about your problem. We will assist you
with any problem you might have. Please type 'bye'
to exit our system.
> my computer is broken
No other customer has ever complained about this before.
What is your system configuration?
> windows
That sounds odd. Could you describe that problem in more detail?
> it won't boot up
That sounds odd. Could you describe that problem in more detail?
> I get the blue screen of death
I need a bit more information on that.
> it's blue
That sounds interesting. Tell me more...
> really blue
That's not a bug, it's a feature!
>
```



# Class Diagram V2

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No change  
at class  
level

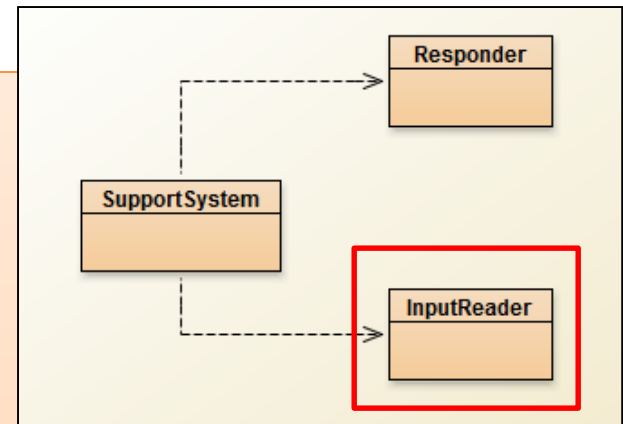
```
import java.util.Scanner;

public class InputReader{

    Scanner input;

    public InputReader(){
        input = new Scanner(System.in);
    }

    /**
     * Read a line of text from standard input (the text terminal),
     * and return it as a String.
     *
     * @return A String typed by the user.
     */
    public String getInput() {
        System.out.print("> ");           // print prompt
        String inputLine = input.nextLine().trim().toLowerCase();
        return inputLine;
    }
}
```



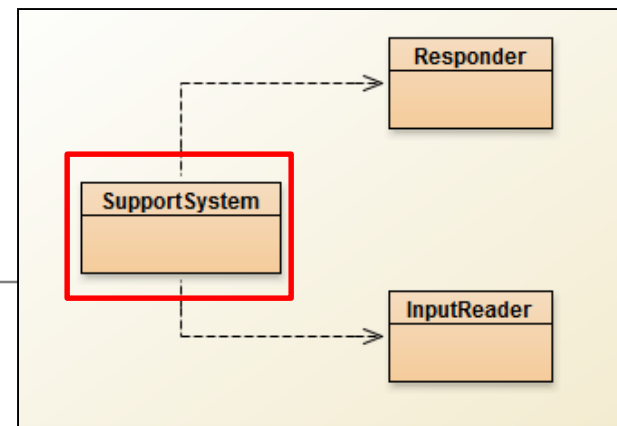
No change  
in this class

```
public class SupportSystem
{
    private InputReader reader;
    private Responder responder;

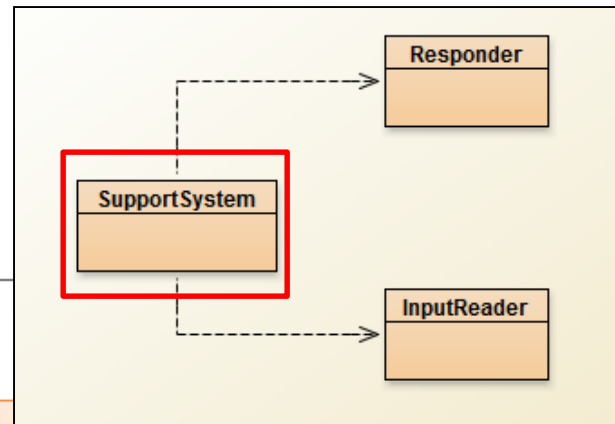
    public SupportSystem() {
        reader = new InputReader();
        responder = new Responder();
    }

    public static void main(String[] args){
        SupportSystem app = new SupportSystem();
        app.start();
    }

    public void start(){
        printWelcome();
        String input = reader.getInput();
        while(! input.startsWith("bye")) {
            String response = responder.generateResponse();
            System.out.println(response);
            input = reader.getInput();
        }
        printGoodbye();
    }
}
```



No change  
in this class



```
private void printWelcome(){
    System.out.println("Welcome to the DodgySoft Technical Support System.");
    System.out.println();
    System.out.println("Please tell us about your problem. We will assist you");
    System.out.println("with any problem you might have. Please type 'bye'");
    System.out.println("to exit our system.");
}

private void printGoodbye(){
    System.out.println("Nice talking to you. Bye...");
}

}
```

No change  
in this class

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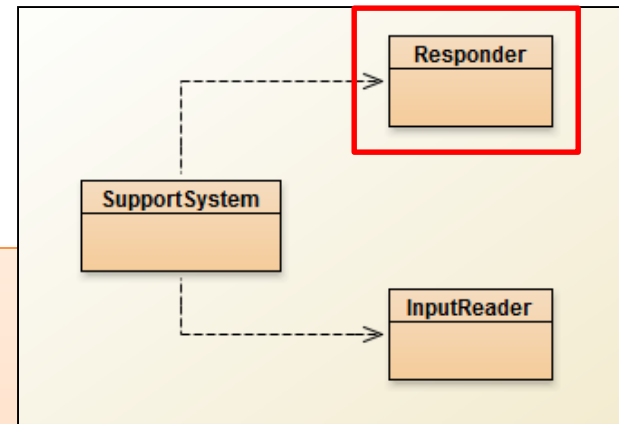
This class will change - to generate a random response

//V1 code

```
public class Responder{

    /**
     * Construct a Responder - nothing to do
     */
    public Responder(){
    }

    /**
     * Generate a response.
     * @return A string that should be displayed as the response
     */
    public String generateResponse(){
        return "That sounds interesting. Tell me more...";
    }
}
```



# Repository of Responses

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- Instead of responding with:  
    "That sounds interesting. Tell me more...";
- We would like to respond with a random response from a repository of responses e.g.
  - "That sounds interesting. Tell me more..."
  - "I need a bit more information on that."
  - "Have you checked that you do not have a dll conflict?"
  - "That is explained in the manual. Have you read the manual?"
  - " That's not a bug, it's a feature!"
  - "Could you elaborate on that?"
  - etc.
- But how do we randomise the selection of a response?

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# Using Random

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- The library class `Random` can be used to generate random numbers

```
import java.util.Random;
...
Random randomGenerator = new Random();
...
//random int number (no upper or lower bound)
int index1 = randomGenerator.nextInt();

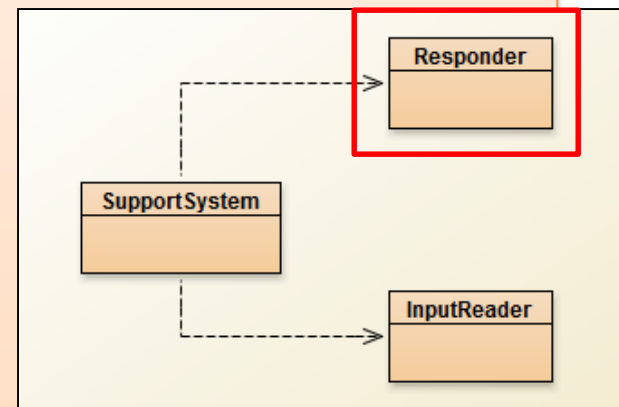
//random number between 0 (inclusive) and 100 (exclusive)
int index2 = randomGenerator.nextInt(100);
```

```
import java.util.ArrayList;

public class Responder{
    private ArrayList<String> responses;

    public Responder() {
        responses = new ArrayList<String>();
        fillResponses();
    }

    private void fillResponses() {
        responses.add("That sounds odd. Could you describe that problem in more detail?");
        responses.add("No other customer has ever complained about this before. \n" +
            "What is your system configuration?");
        responses.add("That sounds interesting. Tell me more...");
        responses.add("I need a bit more information on that.");
        responses.add("Have you checked that you do not have a dll conflict?");
        responses.add("That is explained in the manual. Have you read the manual?");
        responses.add("Your description is a bit wishy-washy. Have you got an expert\n" +
            "there with you who could describe this more precisely?");
        responses.add("That's not a bug, it's a feature!");
        responses.add("Could you elaborate on that?");
    }
}
```



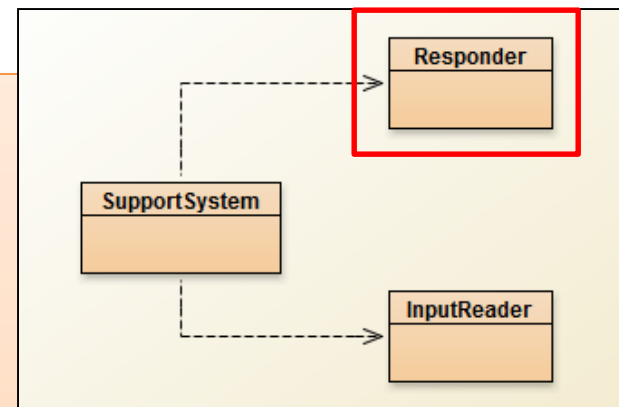
V2.0 Responder...changes to create a repository of responses.

```
import java.util.ArrayList;
import java.util.Random;
```

```
public class Responder{
    private Random randomGenerator;
    private ArrayList<String> responses;

    public Responder() {
        randomGenerator = new Random();
        responses = new ArrayList<String>();
        fillResponses();
    }

    public String generateResponse() {
        // Pick a random number between 0 (inclusive) and the size
        // of the ArrayList (exclusive).
        int index = randomGenerator.nextInt(responses.size());
        return responses.get(index);
    }
}
```



V2.0 Responder changes...to return a random response from a repository of responses.

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**Any  
Questions?**





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