More Sophisticated Behaviour

Technical Support System V1.0

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Mairead Meagher

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

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Topic List

- Recap of Library Classes (Java’s API).
- Interface Vs Implementation.
- Technical Support System V1:
  - Overview of the System
  - InputReader class
  - Responder class
  - SupportSystem class

The Java class library (API)

- Thousands of classes.
- Tens of thousands of methods.
- Many useful classes that make life much easier.
- A competent Java programmer must be able to work with the libraries.
- Documentation of the Java libraries is in HTML format (generated using javadoc comments).
- Readable in a web browser.
- API: *Application Programmers’ Interface*

Using library classes

- Classes from the library must be imported using an *import* statement (except classes from *java.lang*).

- They can then be used like classes from the current project.

Working with the library

You should:

- know some important classes by name.
- know how to find out about other classes.

Remember:

- We only need to know the interface, not the implementation.
- API contains the interface description for all library classes.

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Interface vs implementation

The documentation includes

- the name of the class;
- a general description of the class;
- a list of constructors and methods
- return values and parameters for constructors and methods
- a description of the purpose of each constructor and method

→ **the *interface* of the class**

Interface vs implementation

The documentation ***does not*** *include*

- private fields (most fields are private)
- private methods
- the bodies (source code) for each method

→ **the *implementation* of the class**

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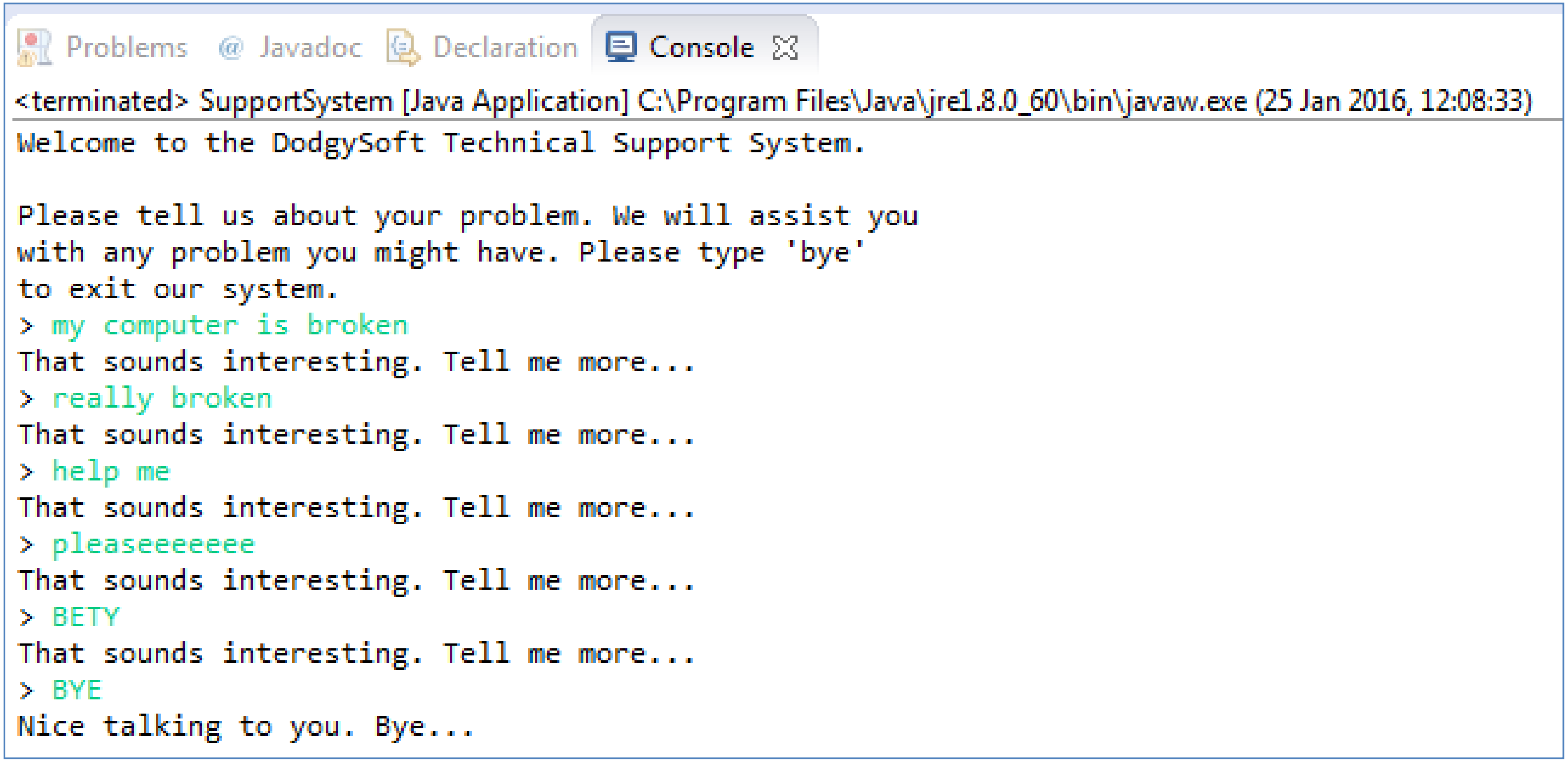
Technical Support System V1

- 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…"

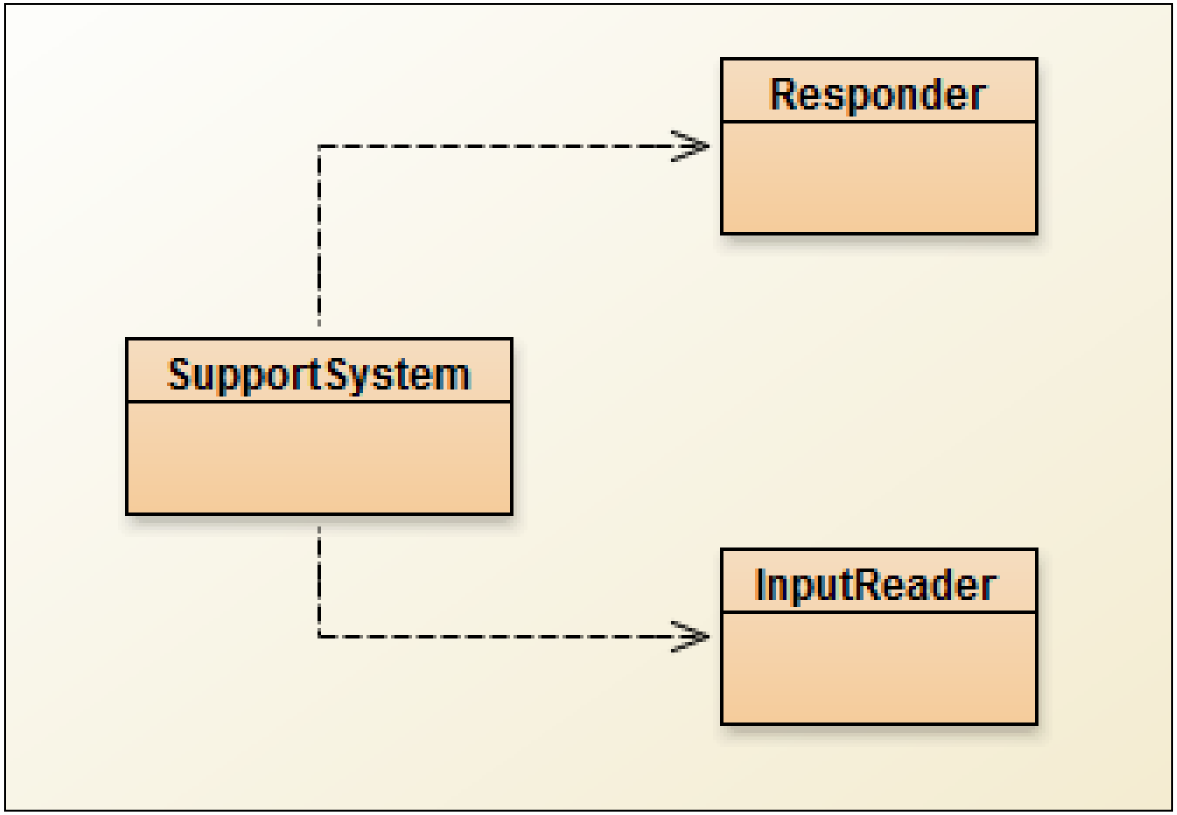
Technical Support System V1



```
<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



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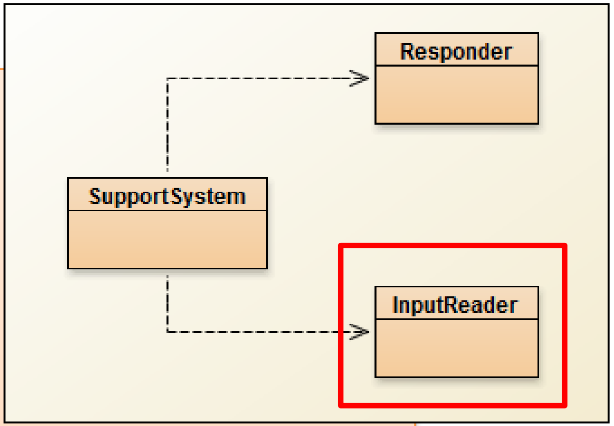
```
import java.util.Scanner;

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;
    }
}
```



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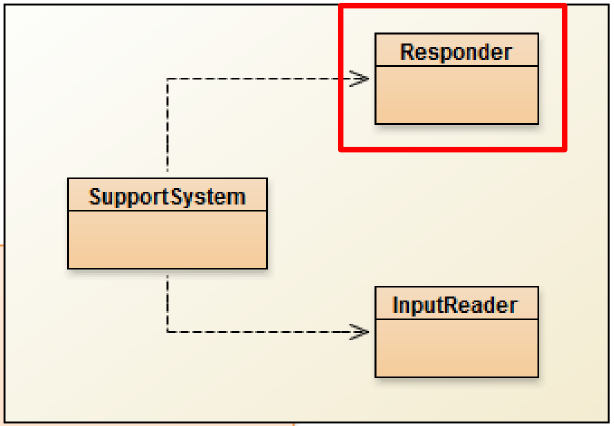
```
public class Responder{

   /**
    * 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...";
   }
}
```



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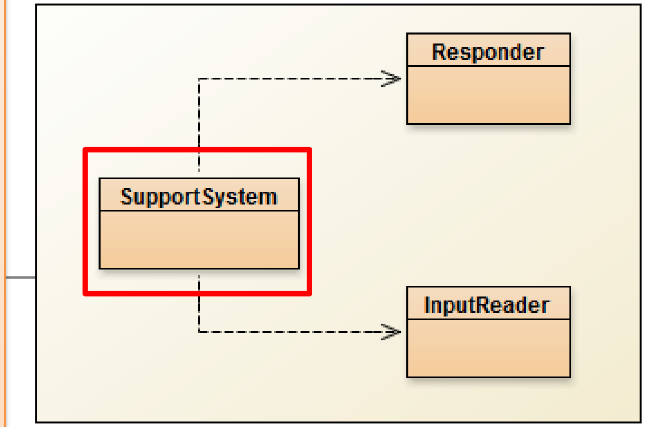
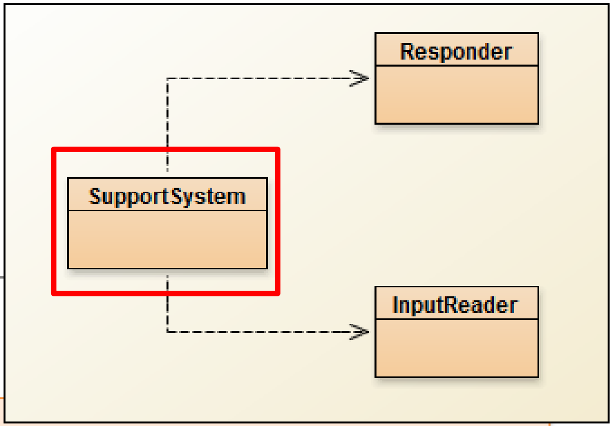
```
public class SupportSystem
{
    private InputReader reader;
    private Responder responder;

    public SupportSystem() {
        reader = new InputReader();
        responder = new Responder();
    }
    public static void main(String[] argvs){
        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();
    }
```



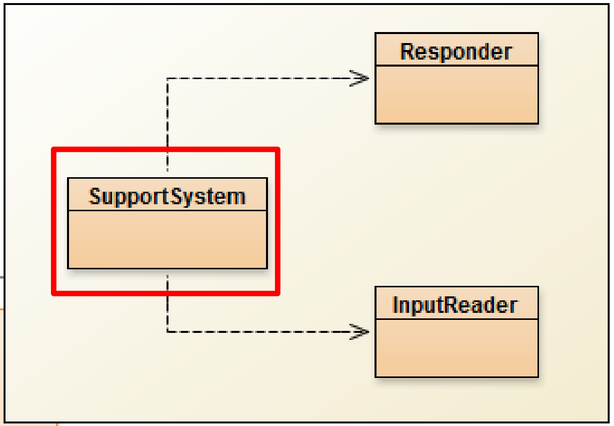


```
 private void printWelcome(){
      System.out.println("Welcome to the DodgySoft Technical Support System.");
      System.out.println();
      System.out.println("Please tell us about your problem. We will assist you");
      System.out.println("with any problem you might have. Please type 'bye'");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

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

}
```

Main loop structure



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

```
Get input
while(input does not start with "bye"){
    do something (i.e. print response)
    Get some new input
}
```

Any Questions?

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