JAVA Textbook

Chapter 3

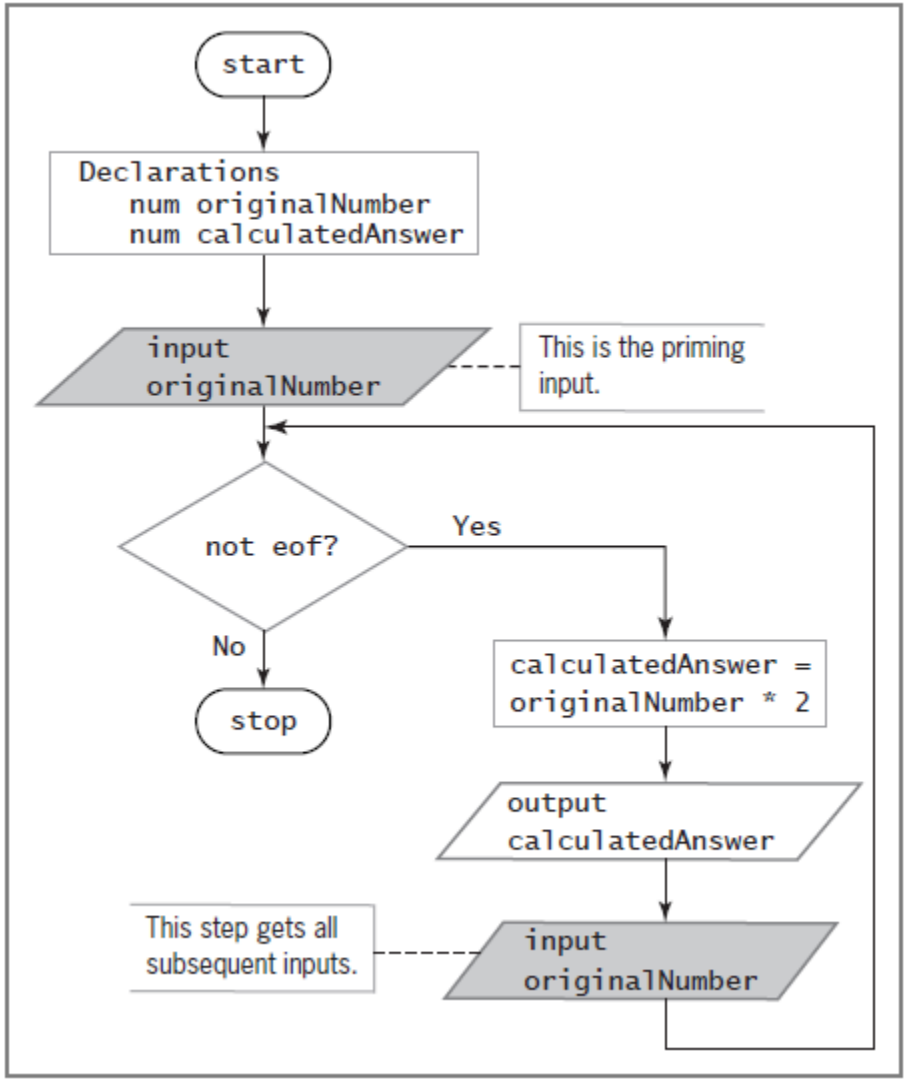
Writing Structured Java Programs

Objectives

In this chapter, you will learn about:

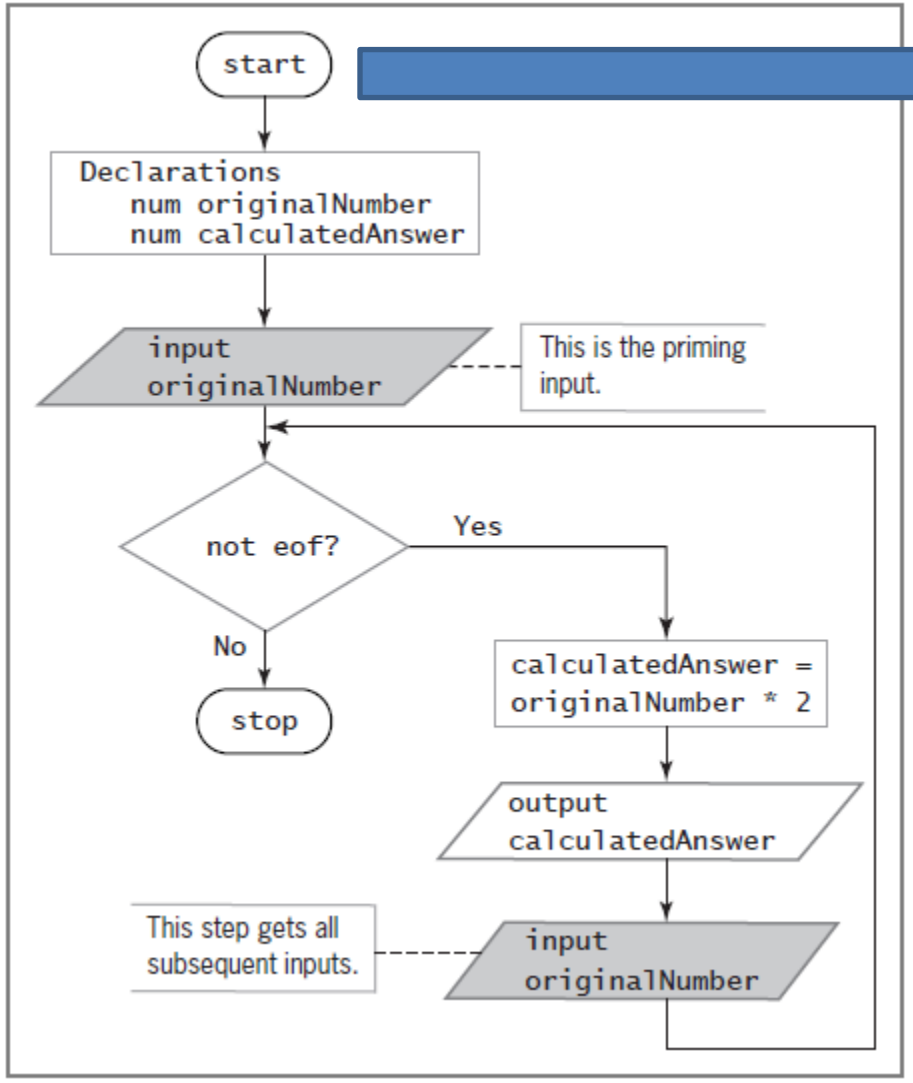
- Use structured flow charts and pseudocode to write structured Java programs
- Write simple modular programs in Java

From Flowcharts/Pseudocode to Java



Example: Number-doubling program

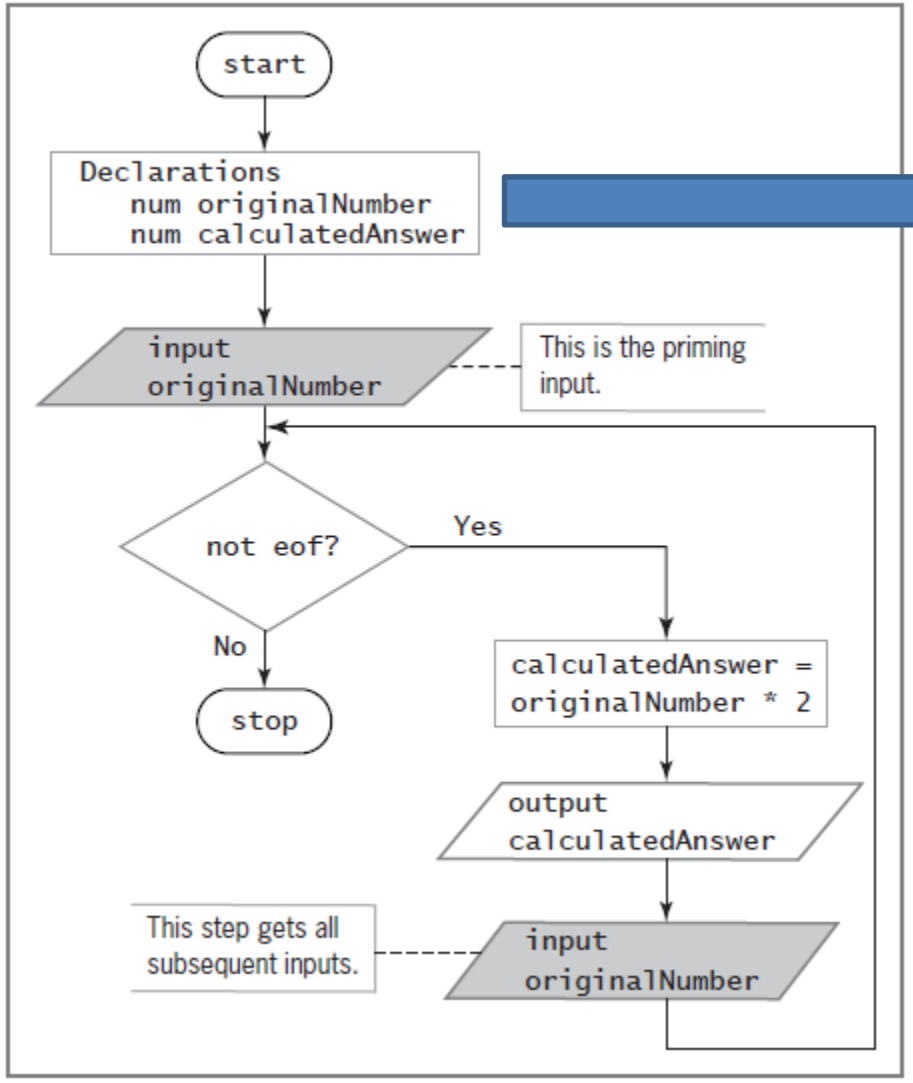
From Flowcharts/Pseudocode to Java




```
public class NumberDouble
{
    public static void main(String args[])
    {
    }
}
```

Example: Number-doubling program

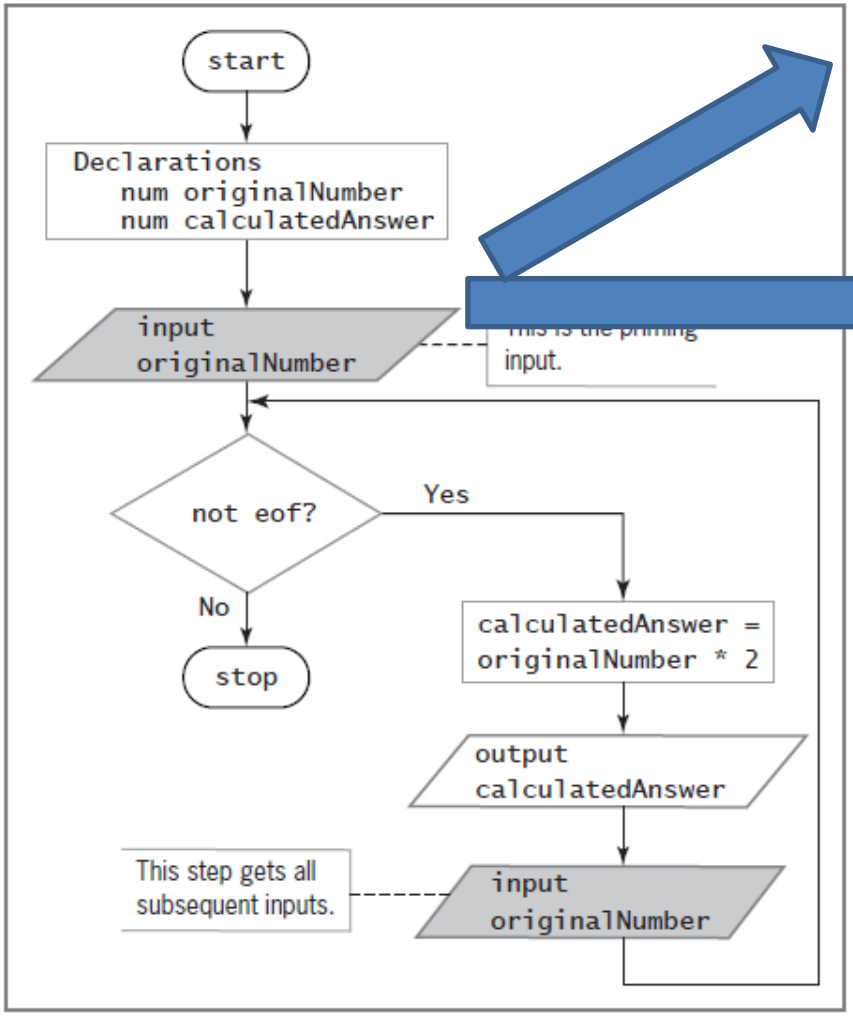
From Flowcharts/Pseudocode to Java




```
public class NumberDouble
{
   public static void main(String args[])
   {
      int originalNumber;
      int calculatedAnswer;
   }
}
```

Example: Number-doubling program

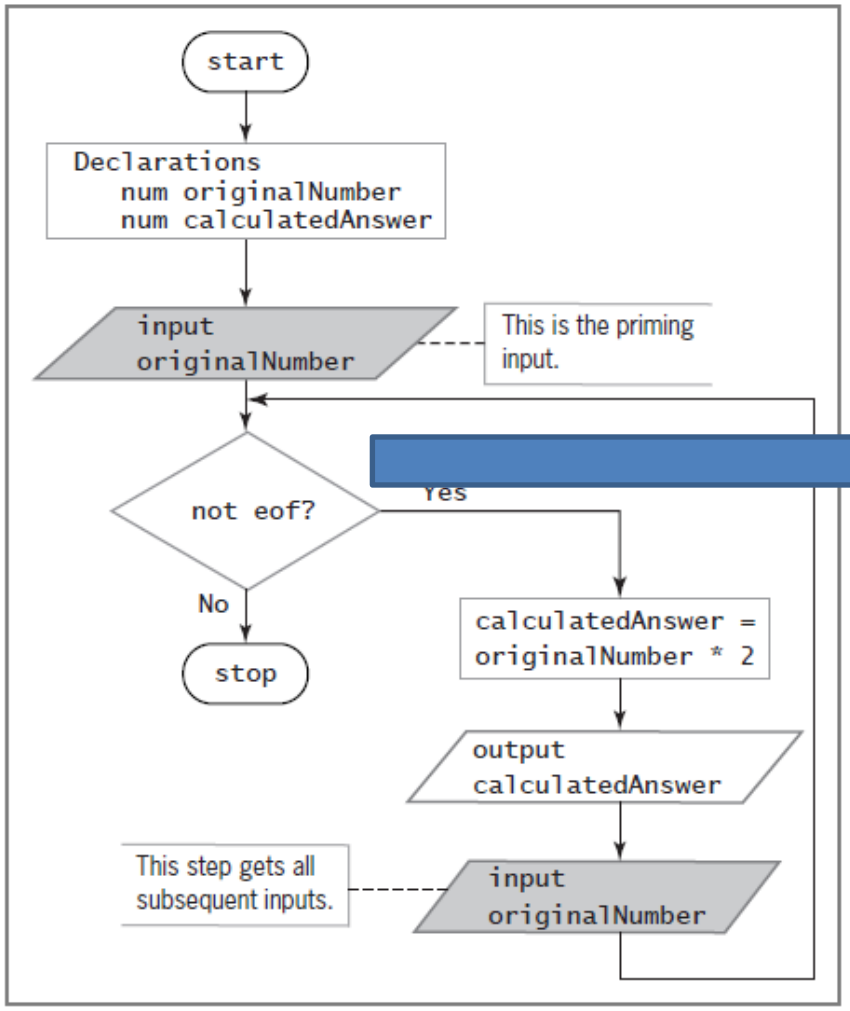
From Flowcharts/Pseudocode to Java




```
import javax.swing.JOptionPane;
public class NumberDouble
{
    public static void main(String args[])
    {
        int originalNumber;
        String originalNumberString;
        int calculatedAnswer;
        originalNumberString = JOptionPane.showInputDialog(
                               "Enter number to double:");
        originalNumber = Intger.parseInt(originalNumberString);
    }
}
```

Example: Number-doubling program

From Flowcharts/Pseudocode to Java

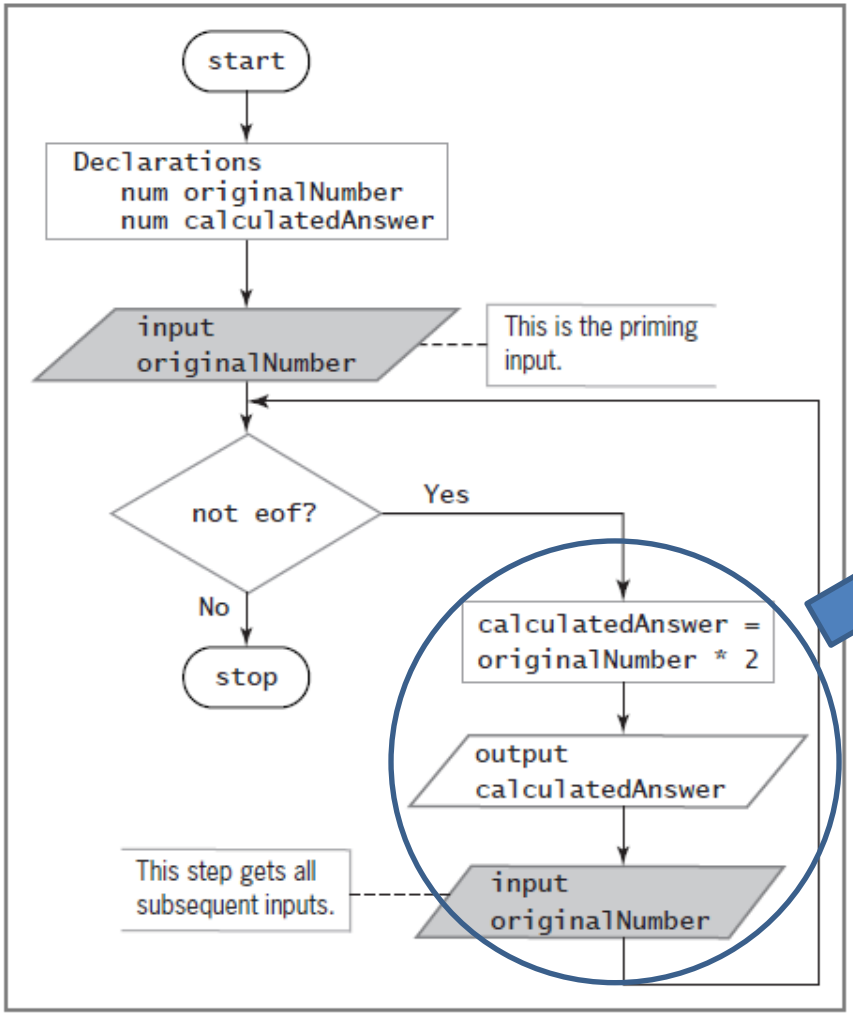



```
import javax.swing.JOptionPane;
public class NumberDouble
{
   public static void main(String args[])
   {
      int originalNumber;
      String originalNumberString;
      int calculatedAnswer;
      originalNumberString = JOptionPane.showInputDialog(
                  "Enter number to double or 0 to end: ");
      originalNumber = Integer.parseInt(originalNumberString);

      while(originalNumber != 0)
      {
      }
   }
}
```

Example: Number-doubling program

From Flowcharts/Pseudocode to Java



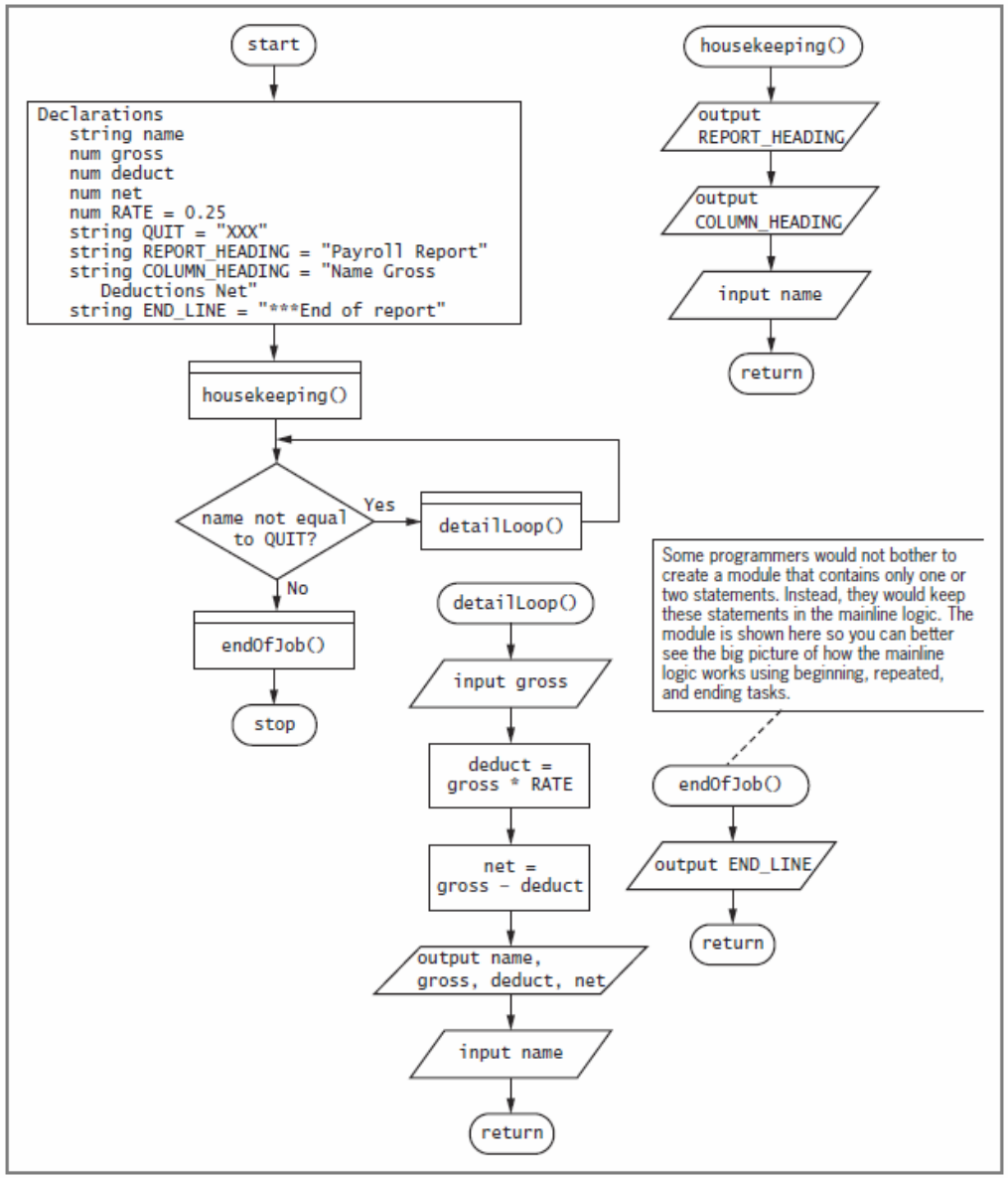

```
import javax.swing.JOptionPane;
public class NumberDouble
{
   public static void main(String args[])
   {
      int originalNumber;
      String originalNumberString;
      int calculatedAnswer;
      originalNumberString = JOptionPane.showInputDialog(
                  "Enter number to double or 0 to end: ");
      originalNumber = Intger.parseInt(originalNumberString);
      while(originalNumber != 0)
      {
         calculatedAnswer = originalNumber * 2;
         System.out.println(originalNumber + " doubled is "
                     + calculatedAnswer);
         originalNumberString = JOptionPane.showInputDialog(
                  "Enter number to double or 0 to end: ");
         originalNumber = Integer.parseInt(originalNumberString);
      }
   }
}
```

Example: Number-doubling program

From Flowcharts/Pseudocode to Java

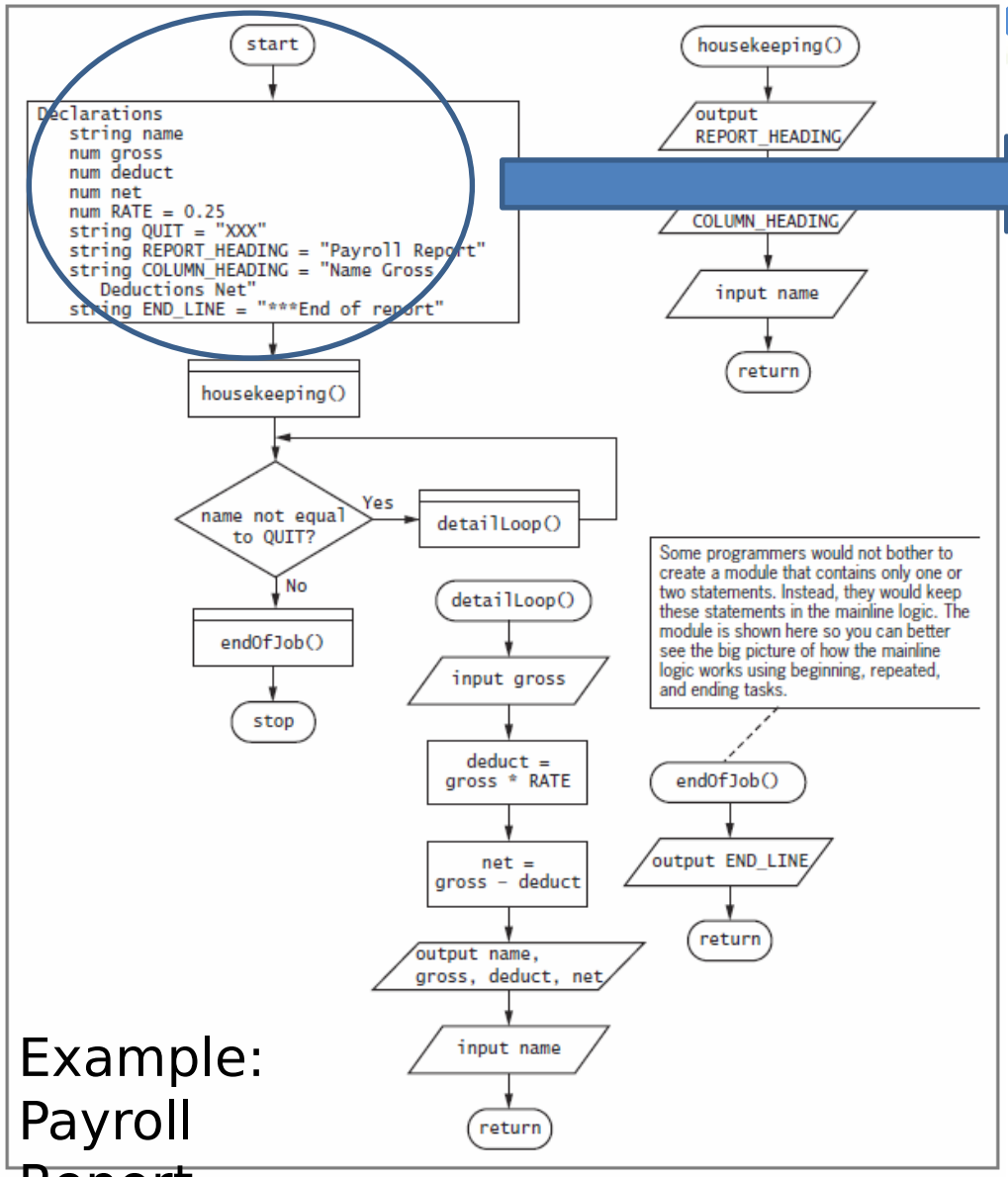
Figure 3-2 Number Double program input and output.

Writing Simple Modular Program in Java



Example: Payroll Report

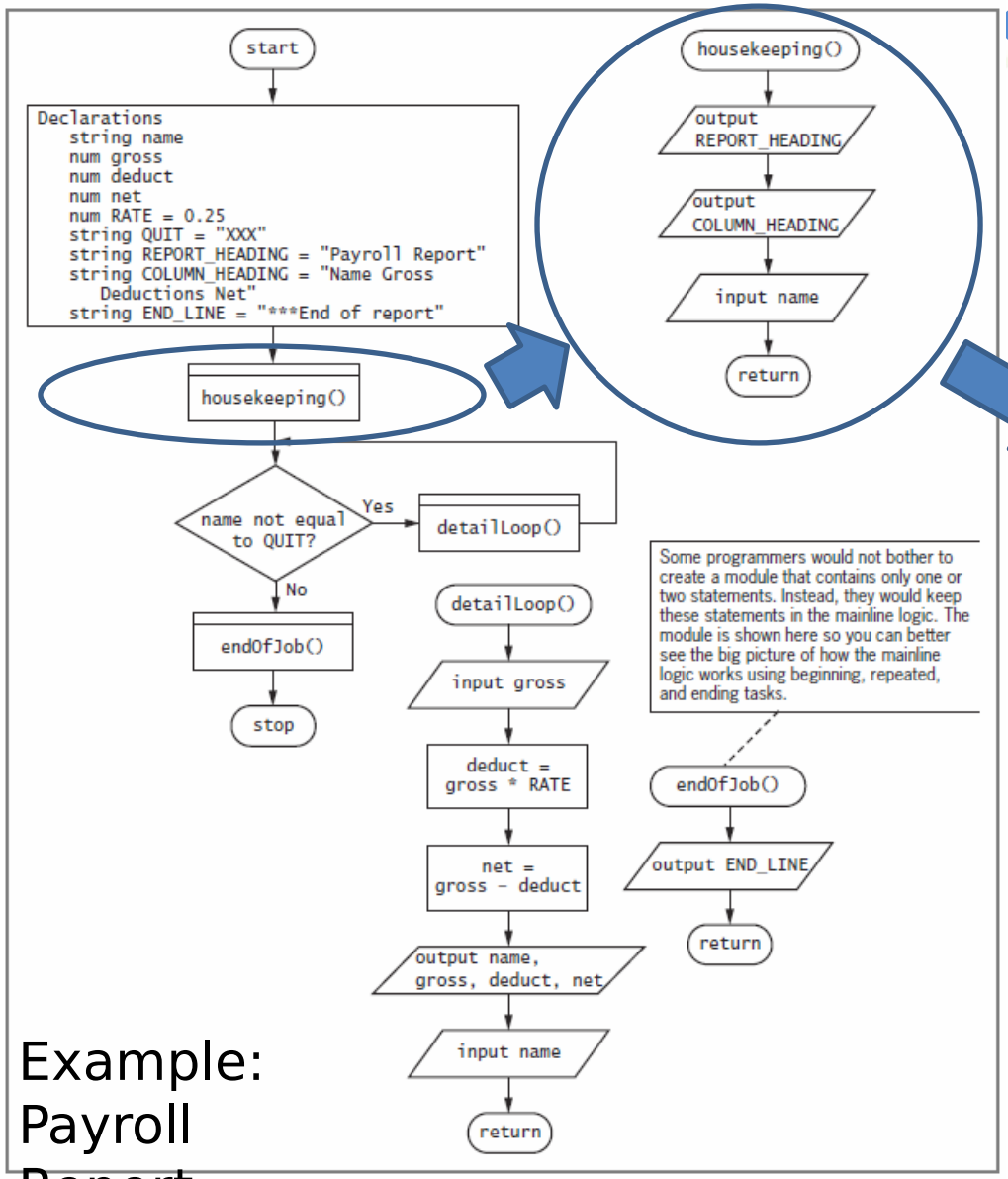
Writing Simple Modular Program in Java




```
import javax.swing.JOptionPane;
public class PayrollReport
{
   public static void main(String args[])
   {
      String name;
      String grossString;
      double gross, deduct, net;
      final double RATE = 0.25;
      final String QUIT = "XXX";
      final String REPORT_HEADING = "Payroll Report";
      final String END_LINE = "**End of report";
   }
}
```

Example: Payroll Report

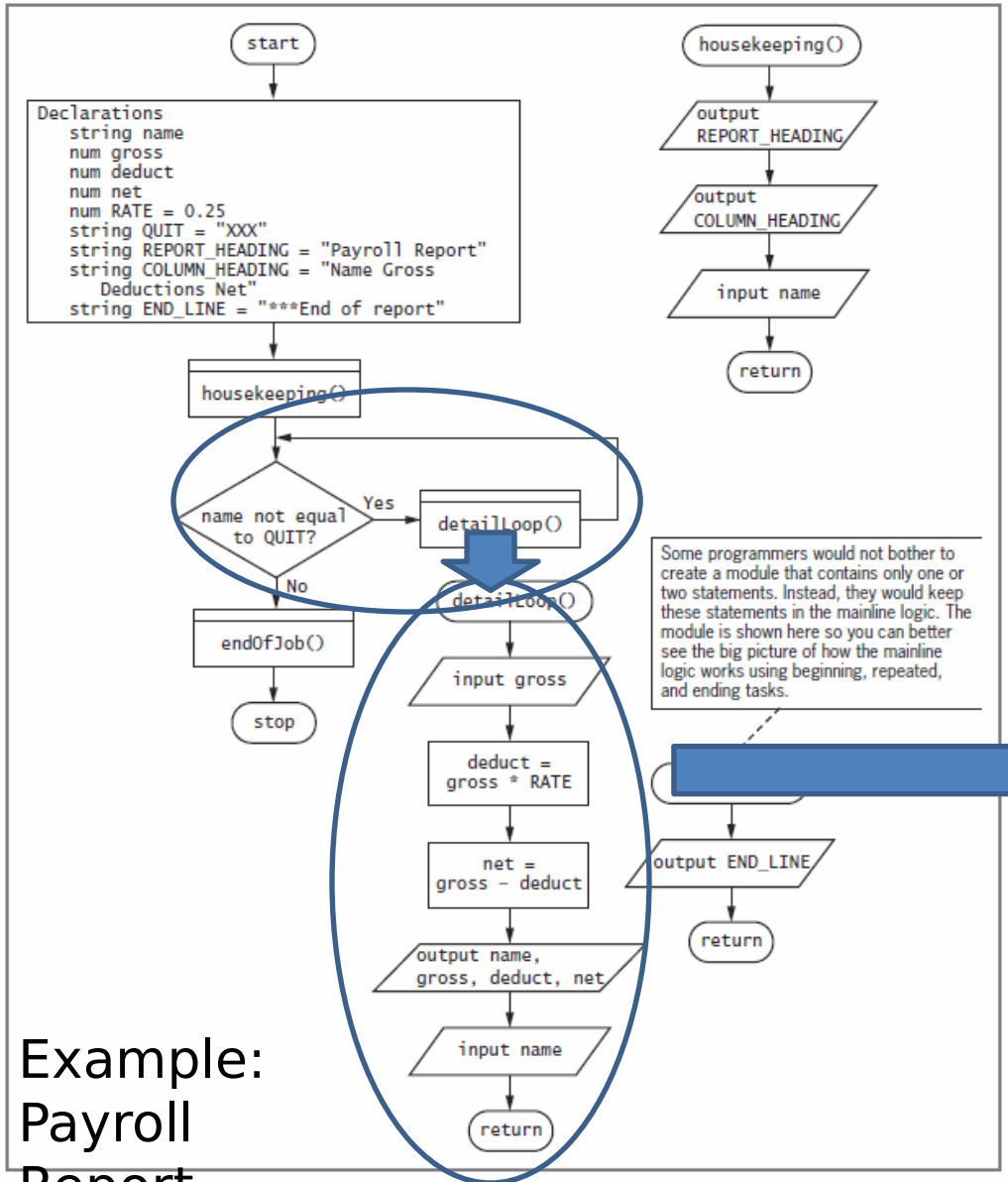
Writing Simple Modular Program in Java




```
import javax.swing.JOptionPane;
public class PayrollReport
{
   public static void main(String args[])
   {
      String name;
      String grossString;
      double gross, deduct, net;
      final double RATE = 0.25;
      final String QUIT = "XXX";
      final String REPORT_HEADING = "Payroll Report";
      final String END_LINE = "**End of report";
      // This is the work done in the housekeeping() method
      System.out.println(REPORT_HEADING);
      name = JOptionPane.showInputDialog(
            "Enter employee's name: ");
   }
}
```

Example: Payroll Report

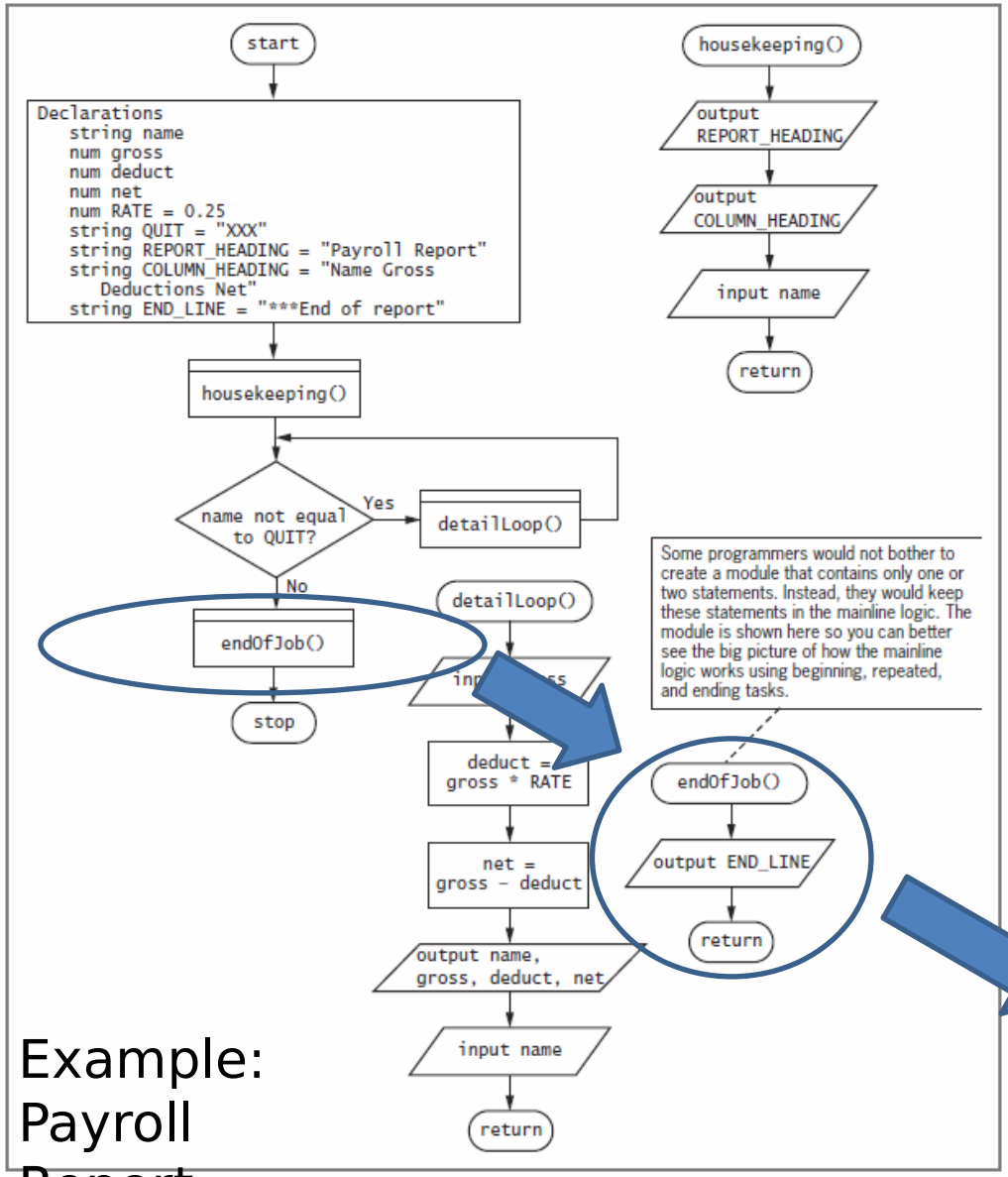
Writing Simple Modular Program in Java




```
import javax.swing.JOptionPane;
public class PayrollReport
{
   public static void main(String args[])
   {
      String name;
      String grossString;
      double gross, deduct, net;
      final double RATE = 0.25;
      final String QUIT = "XXX";
      final String REPORT_HEADING = "Payroll Report";
      final String END_LINE = "**End of report";
      // This is the work done in the housekeeping() method
      System.out.println(REPORT_HEADING);
      name = JOptionPane.showInputDialog(
                        "Enter employee's name: ");
      while(name.compareTo(QUIT) != 0)
      {
        // This is the work done in the detailLoop() method
        grossString = JOptionPane.showInputDialog(
                      "Enter employee's gross pay: ");
        gross = Double.parseDouble(grossString);
        deduct = gross * RATE;
        net = gross - deduct;
        System.out.println("Name: " + name);
        System.out.println("Gross Pay: " + gross);
        System.out.println("Deductions: " + deduct);
        System.out.println("Net Pay: " + net);
        name = JOptionPane.showInputDialog(
               "Enter employee's name:  ");
      }
   }
}
```

Example: Payroll Report

Writing Simple Modular Program in Java




```
import javax.swing.JOptionPane;
public class PayrollReport
{
   public static void main(String args[])
   {
      String name;
      String grossString;
      double gross, deduct, net;
      final double RATE = 0.25;
      final String QUIT = "XXX";
      final String REPORT_HEADING = "Payroll Report";
      final String END_LINE = "**End of report";
      // This is the work done in the housekeeping() method
      System.out.println(REPORT_HEADING);
      name = JOptionPane.showInputDialog(
            "Enter employee's name: ");
      while(name.compareTo(QUIT) != 0)
      {
        // This is the work done in the detailLoop() method
        grossString = JOptionPane.showInputDialog(
                    "Enter employee's gross pay: ");
        gross = Double.parseDouble(grossString);
        deduct = gross * RATE;
        net = gross - deduct;
        System.out.println("Name: " + name);
        System.out.println("Gross Pay: " + gross);
        System.out.println("Deductions: " + deduct);
        System.out.println("Net Pay: " + net);
        name = JOptionPane.showInputDialog(
              "Enter employee's name: ");
      }
      //This is the work done in the endOfJob() method
      System.out.println(END_LINE);
   }
}
```

Example: Payroll Report

Writing Simple Modular Program in Java

Figure 3-5 Output of the Payroll Report program when the input is `William` and `1500`

Thank You!