

CIS 142

**COVER PAGE**  
**INTRODUCTION TO JAVA**  
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UNIT 9 EXERCISES



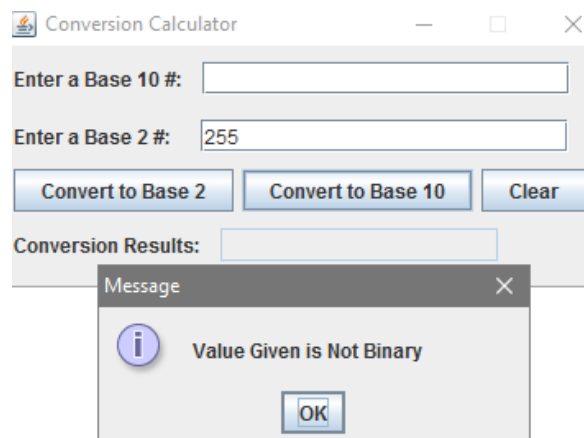
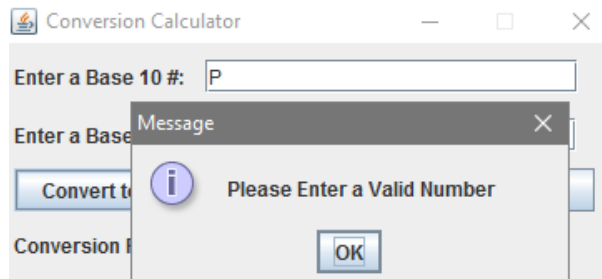
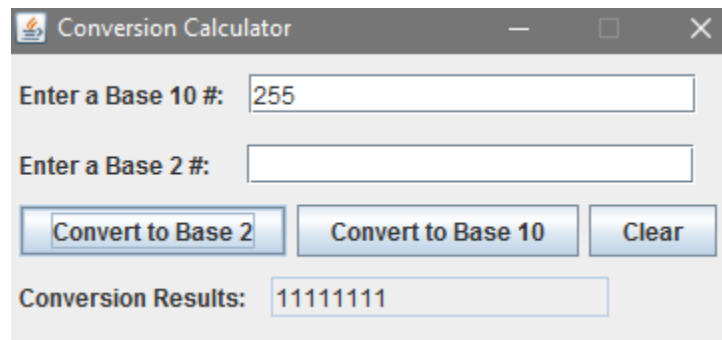
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## NARRATIVE

This unit was interesting to me. Being able to fix my program from last unit with exception handling was cool. I was able to complete this exercise surprisingly well/easily. The only issue I had with this assignment was getting the program to check if a number was binary. With some research, I found a solution and it was very successful. I learned a great deal from this unit.

## PROGRAM OUTPUT



## SOURCE CODE

```
import java.awt.Component;
import java.awt.Container;
import java.awt.FlowLayout;
import java.awt.GridLayout;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;

import javax.swing.*.*;

public class Calculator extends JFrame implements ActionListener
{
    private JButton baseTenButton;
    private JButton baseTwoButton;
    private JButton clearButton;
    private JTextField baseTen;
    private JTextField baseTwo;
    private JTextField conversionResults;
    public Calculator()
    {
        this.setTitle("Conversion Calculator");
        Container canvas = this.getContentPane();
        this.setLayout(new GridLayout(2,3));

        canvas.add(new JLabel("Enter a Base 10 #: "), FlowLayout.LEFT);
        baseTen = new JTextField(20);
        canvas.add(baseTen);
        canvas.add(wrapMeInAPanel(baseTen));

        canvas.add(new JLabel("Enter a Base 2 #: "), FlowLayout.RIGHT);
        baseTwo = new JTextField(20);
        canvas.add(baseTwo);
        canvas.add(wrapMeInAPanel(baseTwo));

        baseTwoButton = new JButton("Convert to Base 2");
        baseTwoButton.addActionListener(this);
        canvas.add(createButtonPanel());
        canvas.add(baseTwoButton);
        baseTenButton = new JButton("Convert to Base 10");
        baseTenButton.addActionListener(this);
        canvas.add(baseTenButton);
        clearButton = new JButton("Clear");
        clearButton.addActionListener(this);
        canvas.add(clearButton);
    }
}
```

```
        canvas.add(createResultsPanel());
        canvas.add(new JLabel("Conversion Results: "));
        conversionResults = new JTextField(15);
        conversionResults.setEditable(false);
        canvas.add(conversionResults);
        canvas.add(wrapMeInAPanel(conversionResults));

        this.setSize(375, 175);
        this.setResizable(false);
        this.setVisible(true);
        this.setLocation(750, 400);
        this.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
    }

    private JPanel wrapMeInAPanel(Component c)
    {
        JPanel panel = new JPanel();
        panel.add(c);
        return panel;
    }

    private JPanel createResultsPanel()
    {
        JPanel results = new JPanel();
        this.setLayout(new FlowLayout(FlowLayout.LEFT));

        return results;
    }

    public static void main(String[] args)
    {
        new Calculator();
    }

    private JPanel createButtonPanel()
    {
        JPanel buttonPanel = new JPanel();
        this.setLayout(new FlowLayout(FlowLayout.CENTER));
```

```
        return buttonPanel;
    }

    @Override
    public void actionPerformed(ActionEvent e)
    {
        String getValue = baseTen.getText();
        String getValue2 = baseTwo.getText();
        if(e.getSource() == baseTwoButton)
        {
            try
            {
                String convert1 =
Integer.toBinaryString(Integer.valueOf(getValue));
                conversionResults.setText(convert1);

            } catch (NumberFormatException e1)
            {
                JOptionPane.showMessageDialog(null, "Please Enter a Valid
Number" );

                baseTen.setText("");
                baseTen.grabFocus();
            }
        }
        if(e.getSource() == baseTenButton)
        {
            try
            {
                if(!baseTwo.getText().matches("[01]+$")) //This piece of code
helped me out greatly. Found it through the internet and will definitely look into it
further.

                throw new NotInBinaryFormatException();
                String convert2 = Integer.valueOf(getValue2, 2).toString();
                conversionResults.setText(convert2);
            }
            catch (NotInBinaryFormatException err)
            {
                JOptionPane.showMessageDialog(null, err.getMessage() );
                baseTwo.setText("");
                baseTwo.grabFocus();
            }
        }
        if(e.getSource() == clearButton)
        {
            baseTen.setText("");
        }
    }
}
```

```
        baseTwo.setText("");
        conversionResults.setText("");
    }
}

public class NotInBinaryFormatException extends NumberFormatException
{
    public NotInBinaryFormatException()
    {
        this("Value Given is Not Binary");
    }
    public NotInBinaryFormatException(String mess)
    {
        super(mess);
    }
}
```