1. Write a Java application that uses a do-while loop to compute the total interest earned in a savings account after 15 years if the account started with $1000 and earned 2% interest each year.

2. Write a Java application that uses a while loop to compute 10! (“10 factorial”). For any positive integer \( n \), \( n! \) (“\( n \) factorial”) is defined to be \( 1 \cdot 2 \cdot 3 \cdots (n - 1) \cdot n \).

3. Write a Java applet that uses a while loop to draw 20 filled circles of various colors at random locations on the screen.

4. Write a Java applet that uses a for loop to display all shades of gray in a smooth gradient from black to white. See the accompanying applet for a demo.

Be sure to include appropriate comments in your code and to test your programs completely before handing them in.

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*Start early (or now) and have fun!*