```
$ ruby main.rb

Calculator Application
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1. Addition
2. Subtraction
3. Multiplication
4. Division
5. Quit

Enter your choice: 1
Enter first number: 10
Enter second number: 5
Result: 10 + 5 = 15

Enter your choice: 3
Enter first number: 8
Enter second number: 3
Result: 8 * 3 = 24

Enter your choice: 4
Enter first number: 12
Enter second number: 0
Error: Division by zero

Enter your choice: 5
Goodbye!
```