Presented by Group: 110:

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# AUTOMATED BANKING MACHINE

# What is Software Engineering?

- An engineering discipline for software:
  - Development
  - Operation
  - Maintenance
- Also involves:
  - Managing teams
  - Scheduling
  - Budgeting
- Methodology for large software projects

# Why Software Engineering?

The Software Crisis:

- For every 8 large projects, 2 are cancelled.
- Most projects exceed their time-schedule by 50%.
- 75% of large software systems malfunction after completion.
- Detecting and correcting errors take 50% of time and effort.
- Maintenance cost of a system is 60% of entire cost.

Software engineering tackles the software crisis by providing disciplined processes and methodologies to design, implement, and maintain large systems.

# The Software Life Cycle Process

- Requirements gathering and analysis
- Architecture design and specification
- Coding and testing
- Delivery and deployment
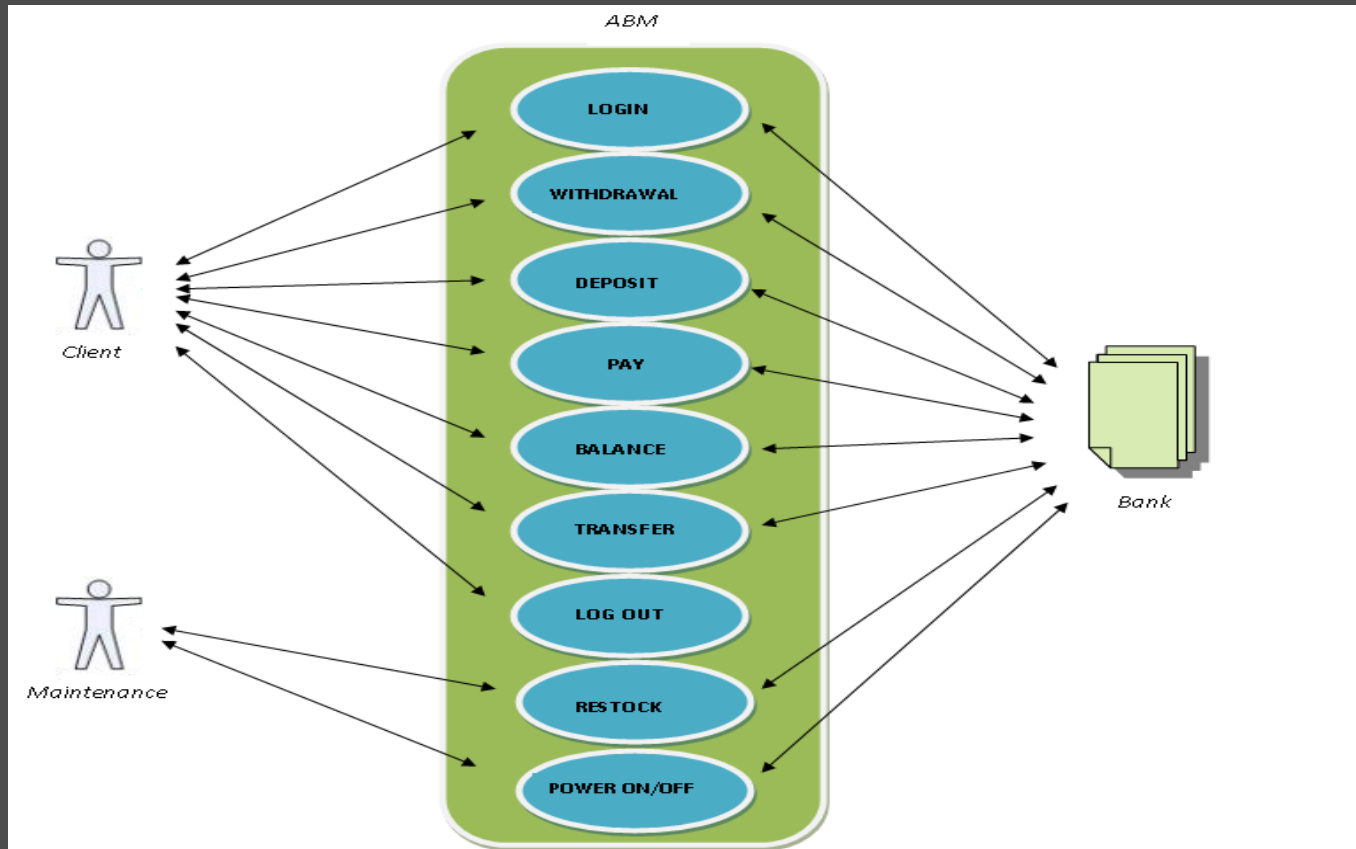- Maintenance and evolution
- Retirement

# The Waterfall Process
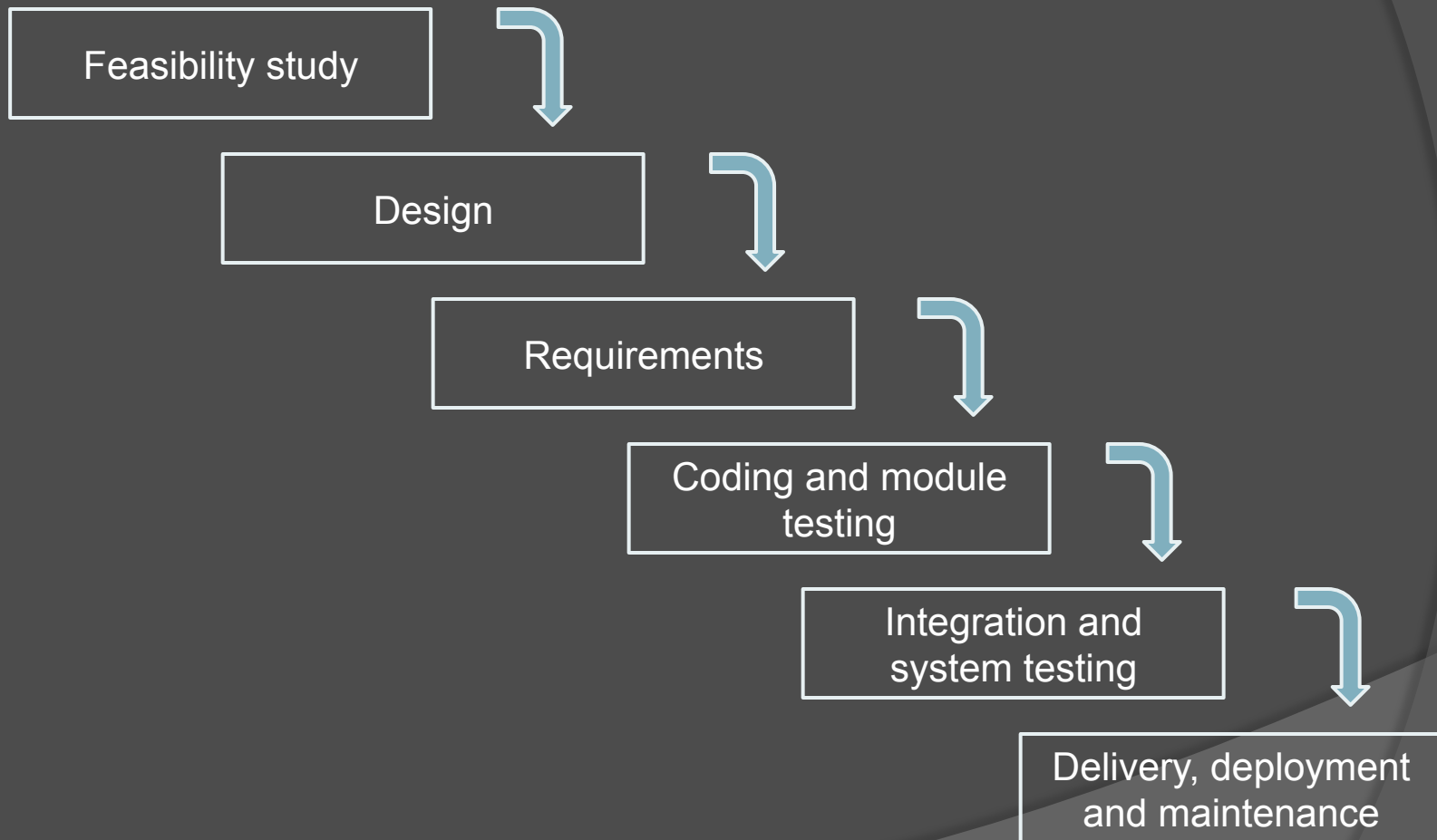
# SRS

- Complete description of the behavior/ requirements of system to be developed
  - Functional Requirements
    - What does the product need to do?
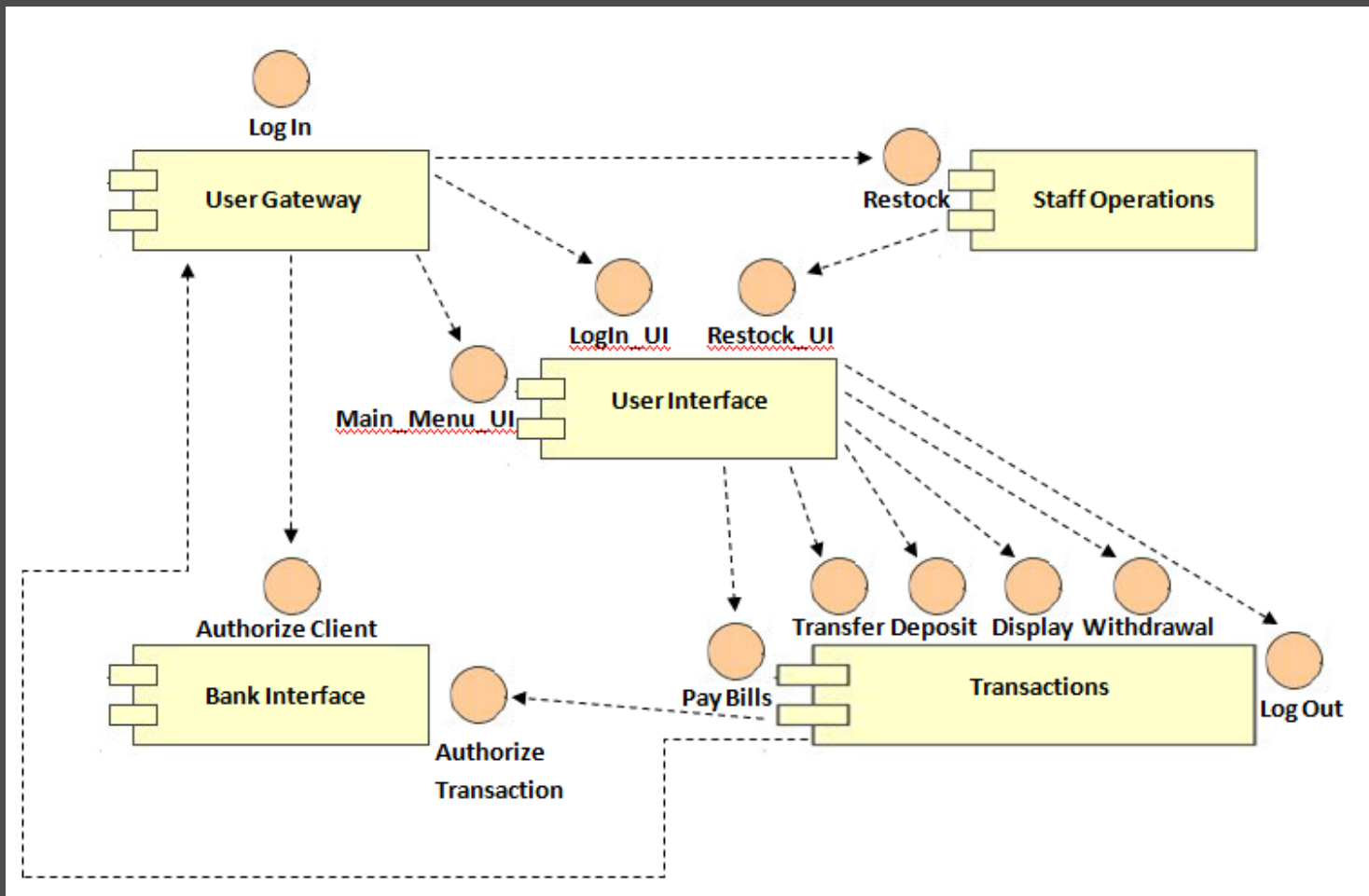  - Nonfunctional requirements
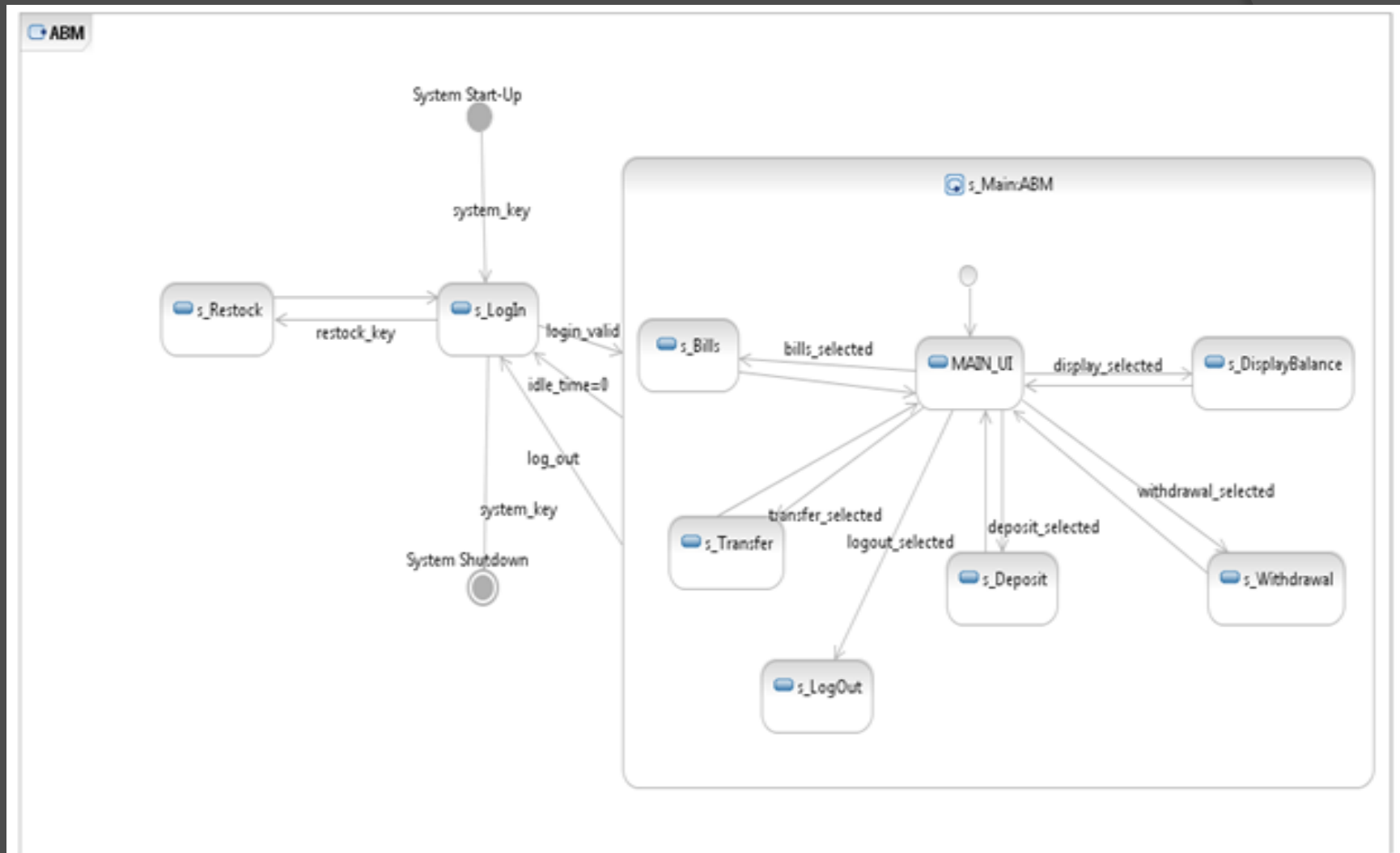    - What are the product constraints?

# Use Case View

# SDS

- Complete description of the software architecture/design and the rationale behind it
  - Architecture
    - Components
  - High level design
    - Interface interaction
  - Low level design
    - Modules

# Component Diagram

# System Statechart

# Implementation in Java:
User Interface

- Replicated the ABM system's hardware

- Implemented using the awt library

- Animations created with the canvas class and multithreading

# Implementation in Java:

The Bank System

- All data stored in a SQL database
- HSQLDB was used since it is native to Java
- Tables for:
  - Clients
  - Accounts
  - ABM
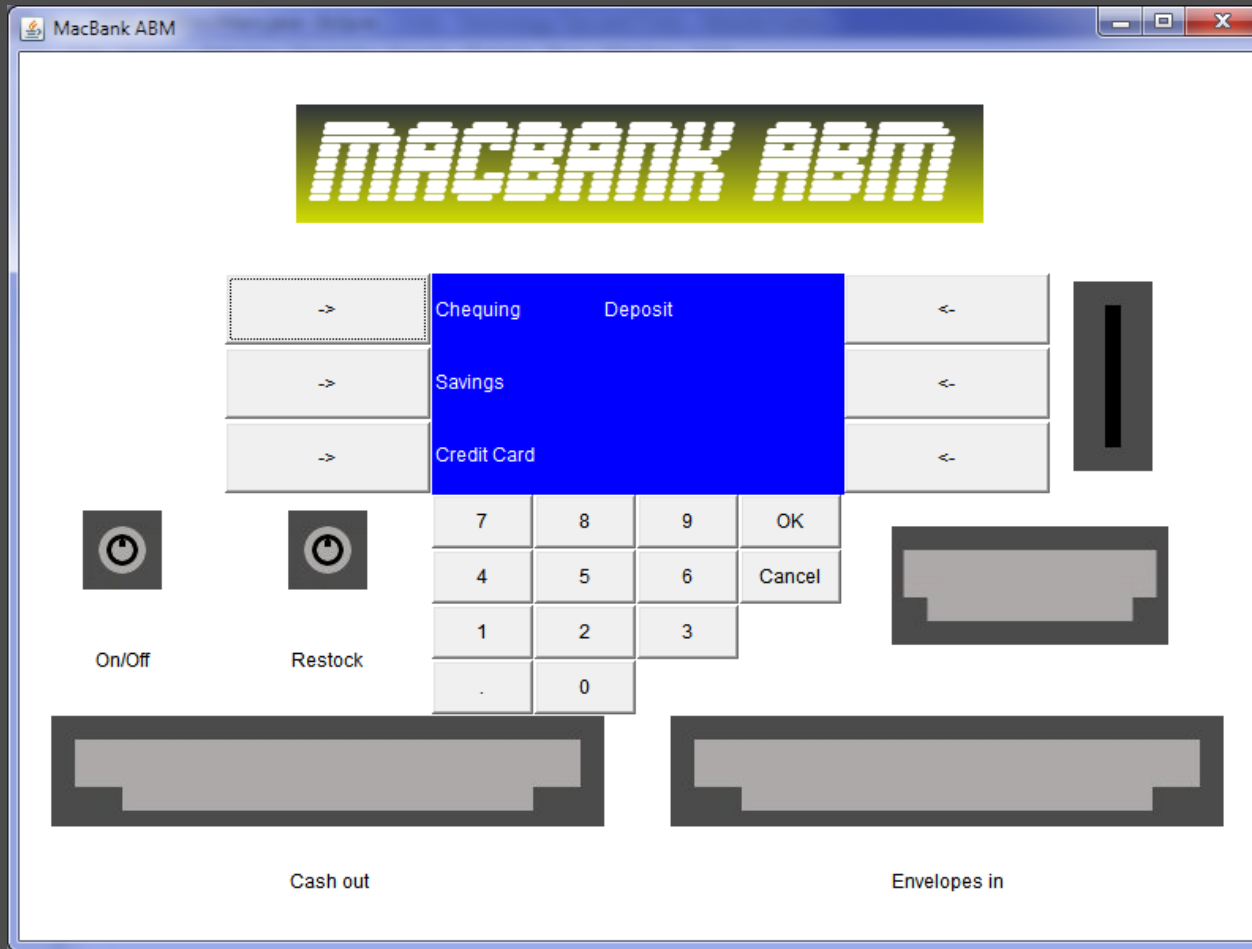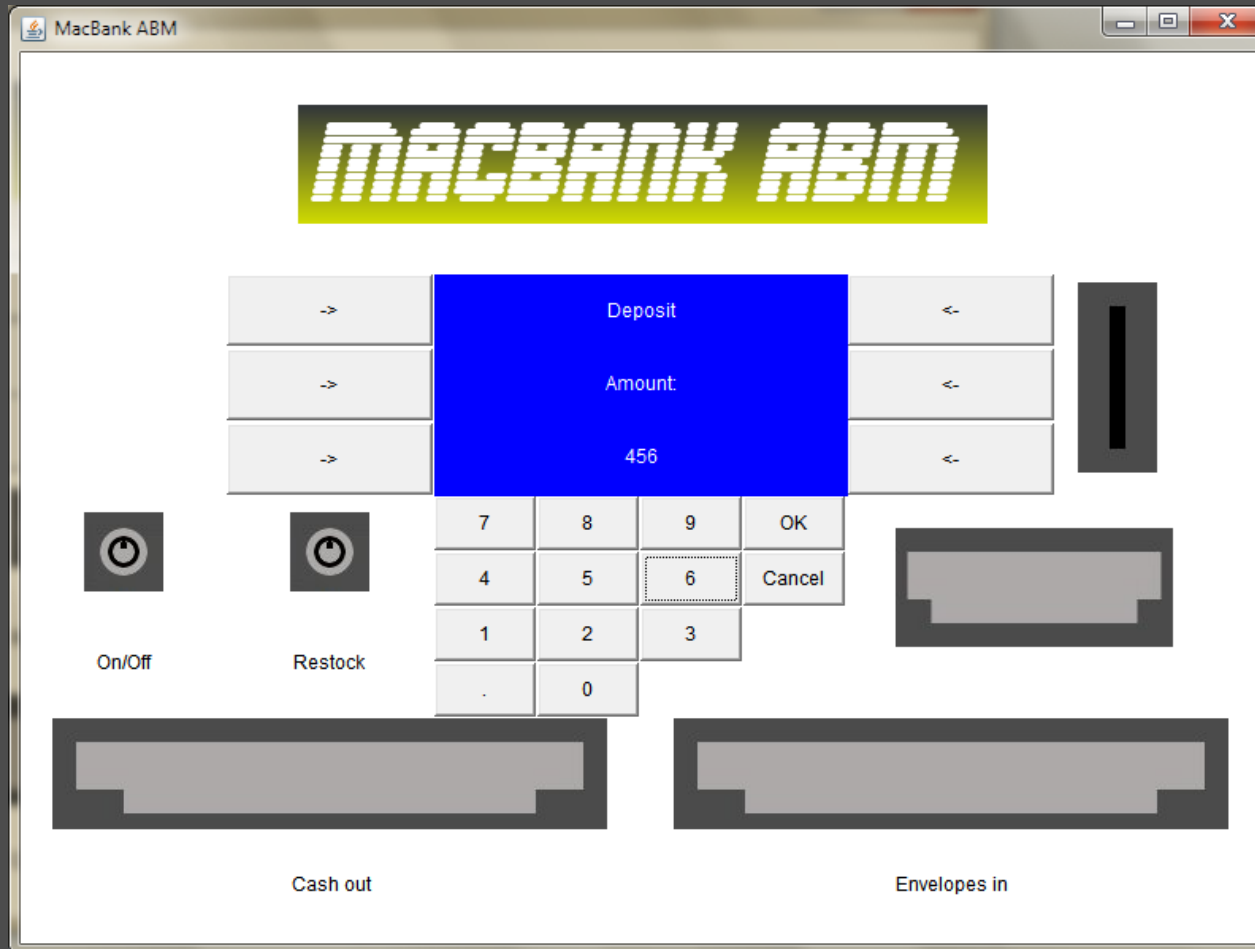- Implemented basic methods for other interfaces

# Log In
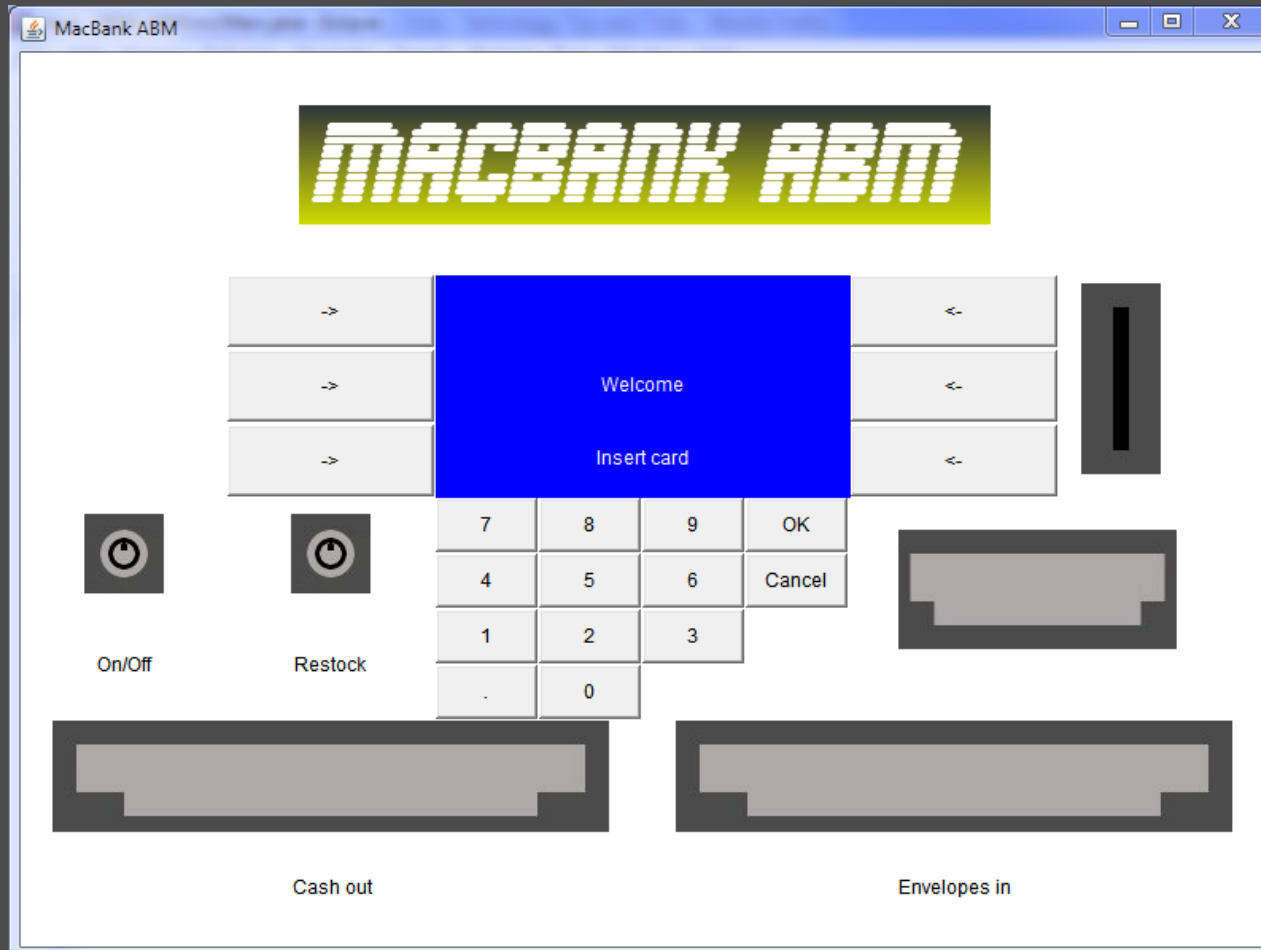
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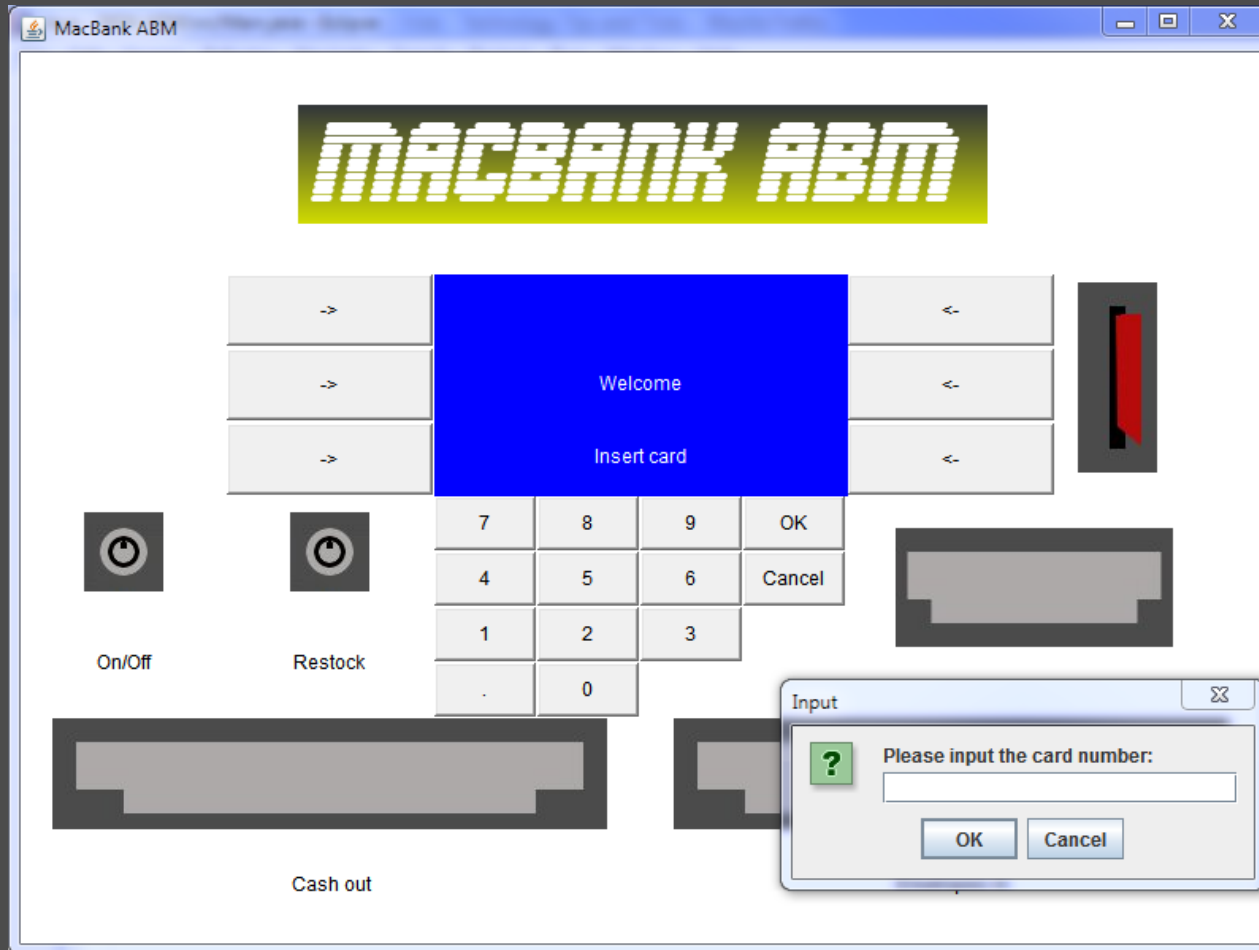
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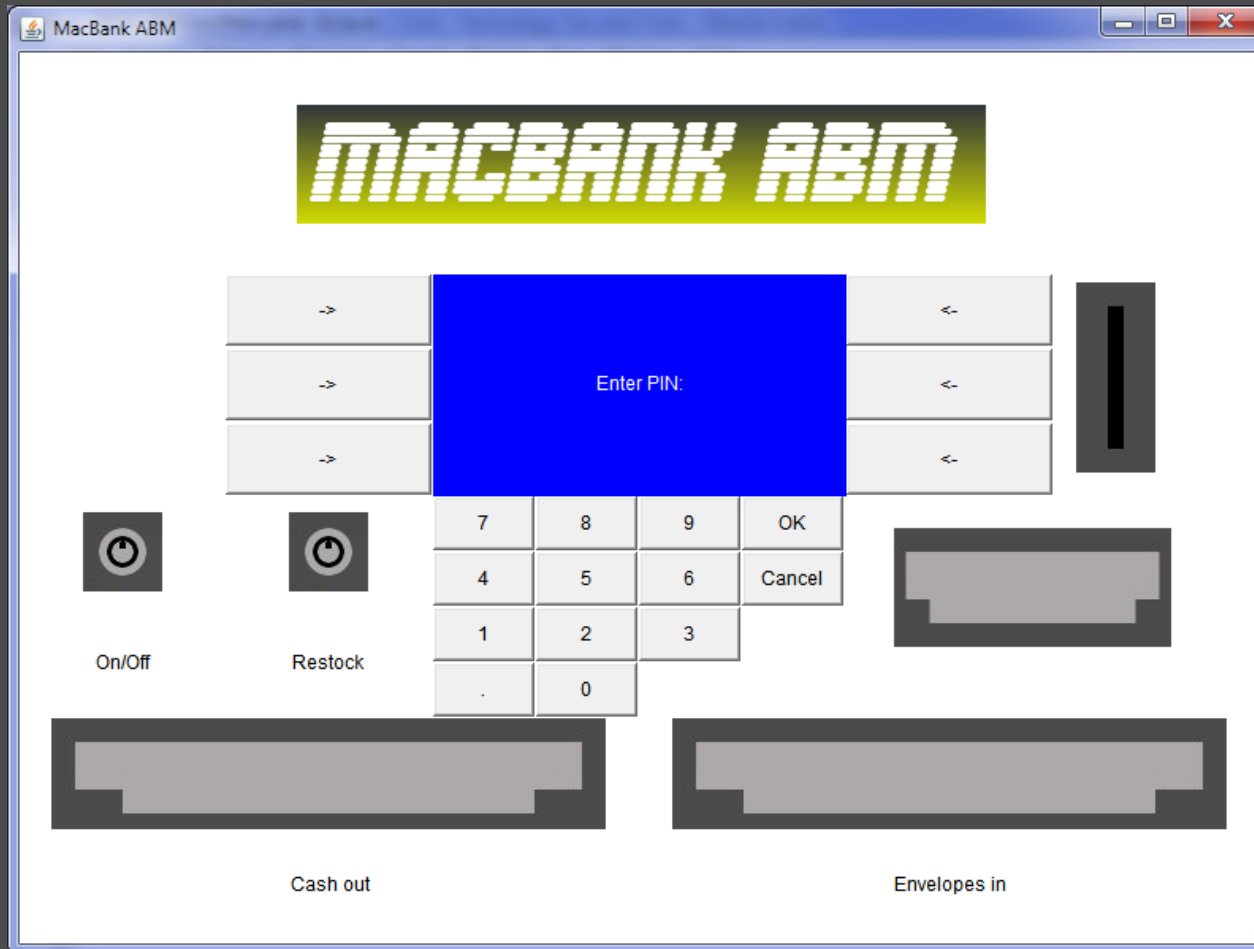
# Main Menu
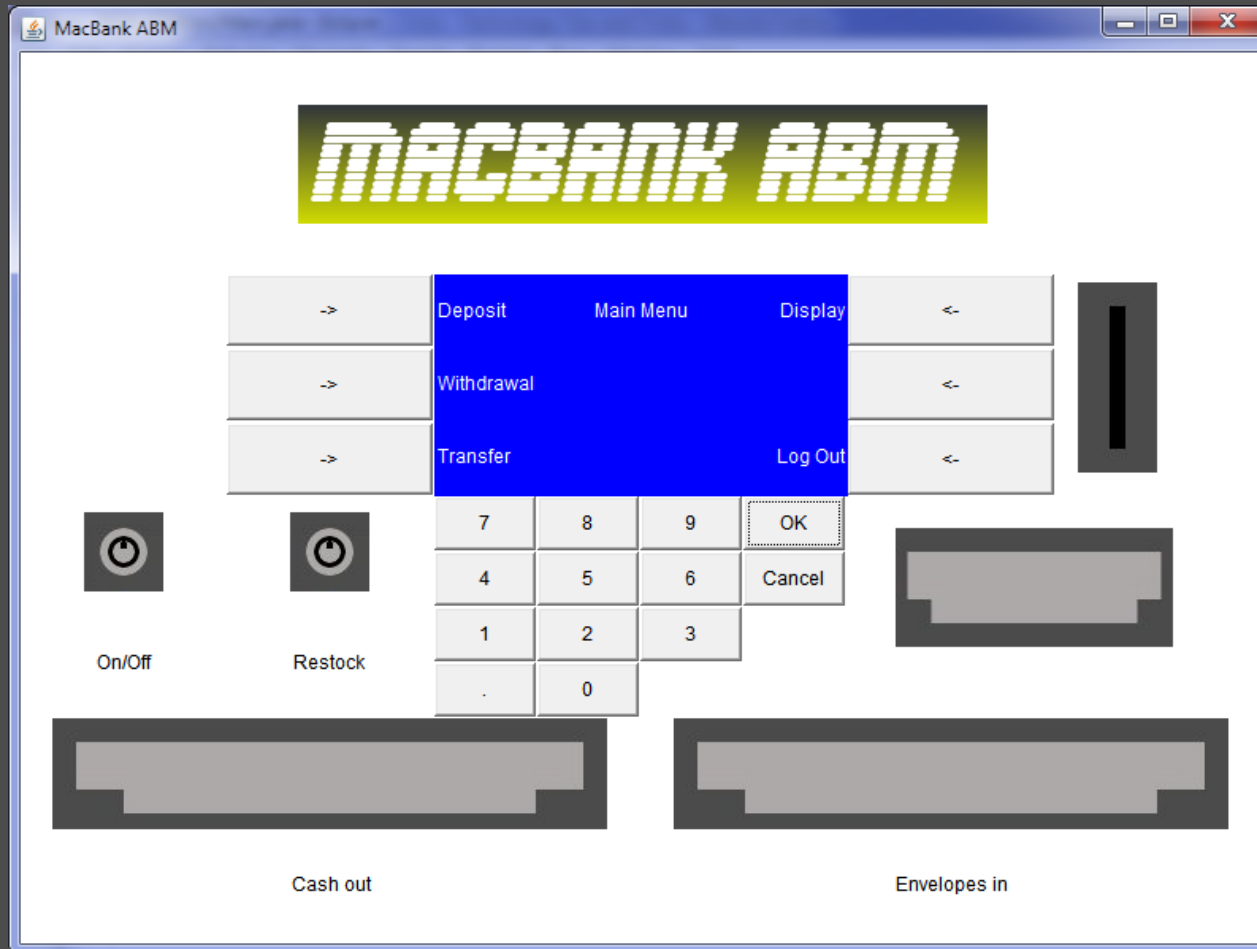
# Deposit

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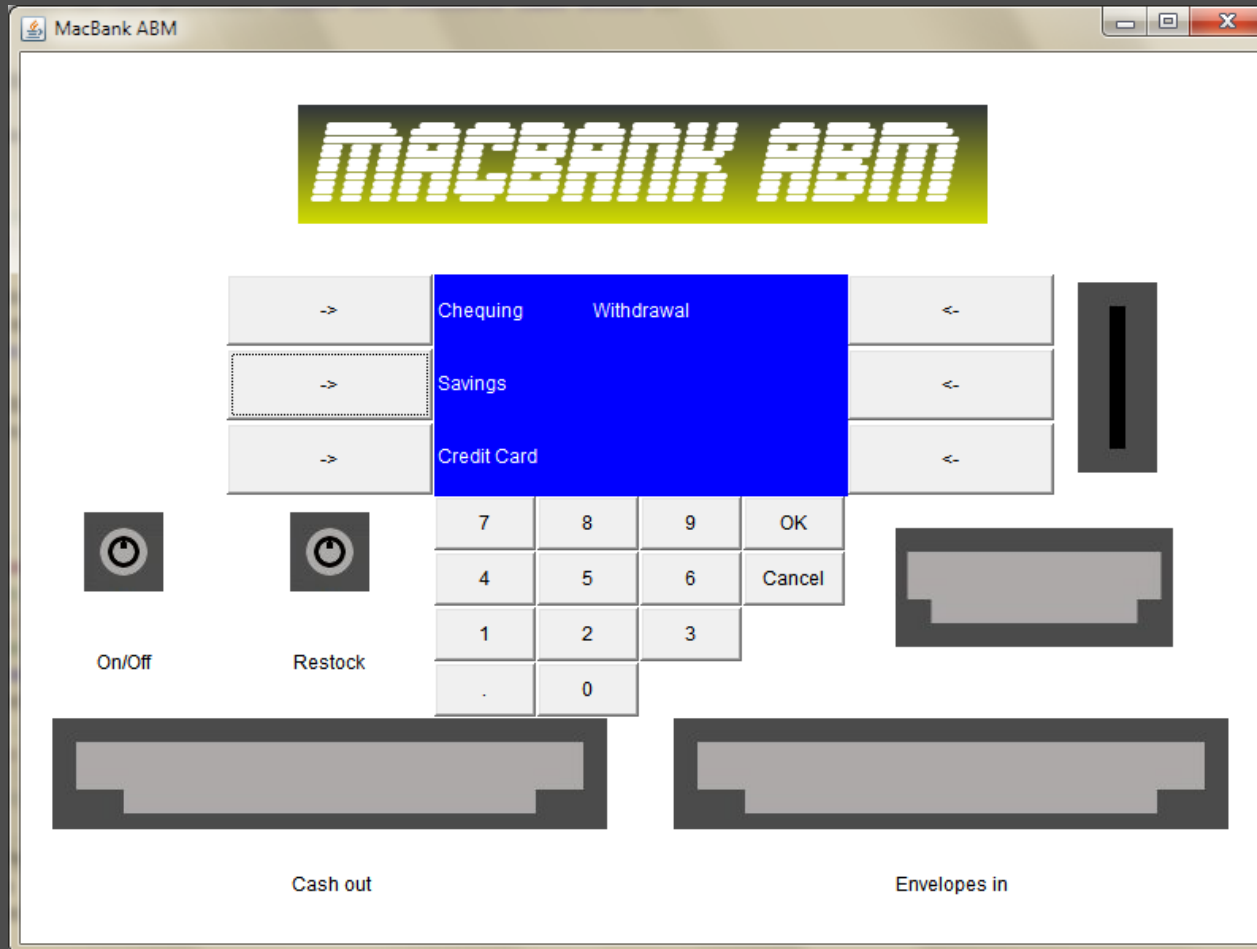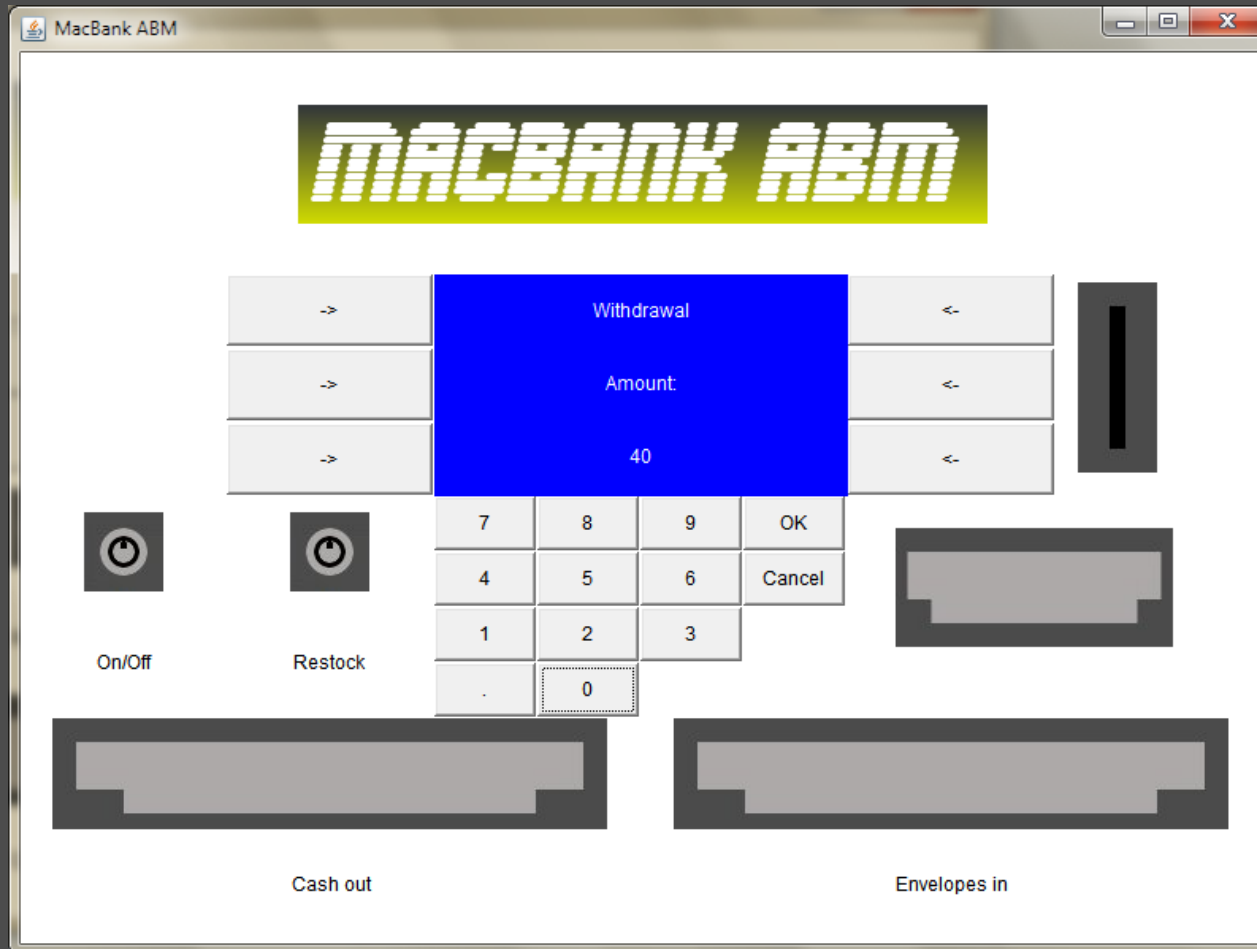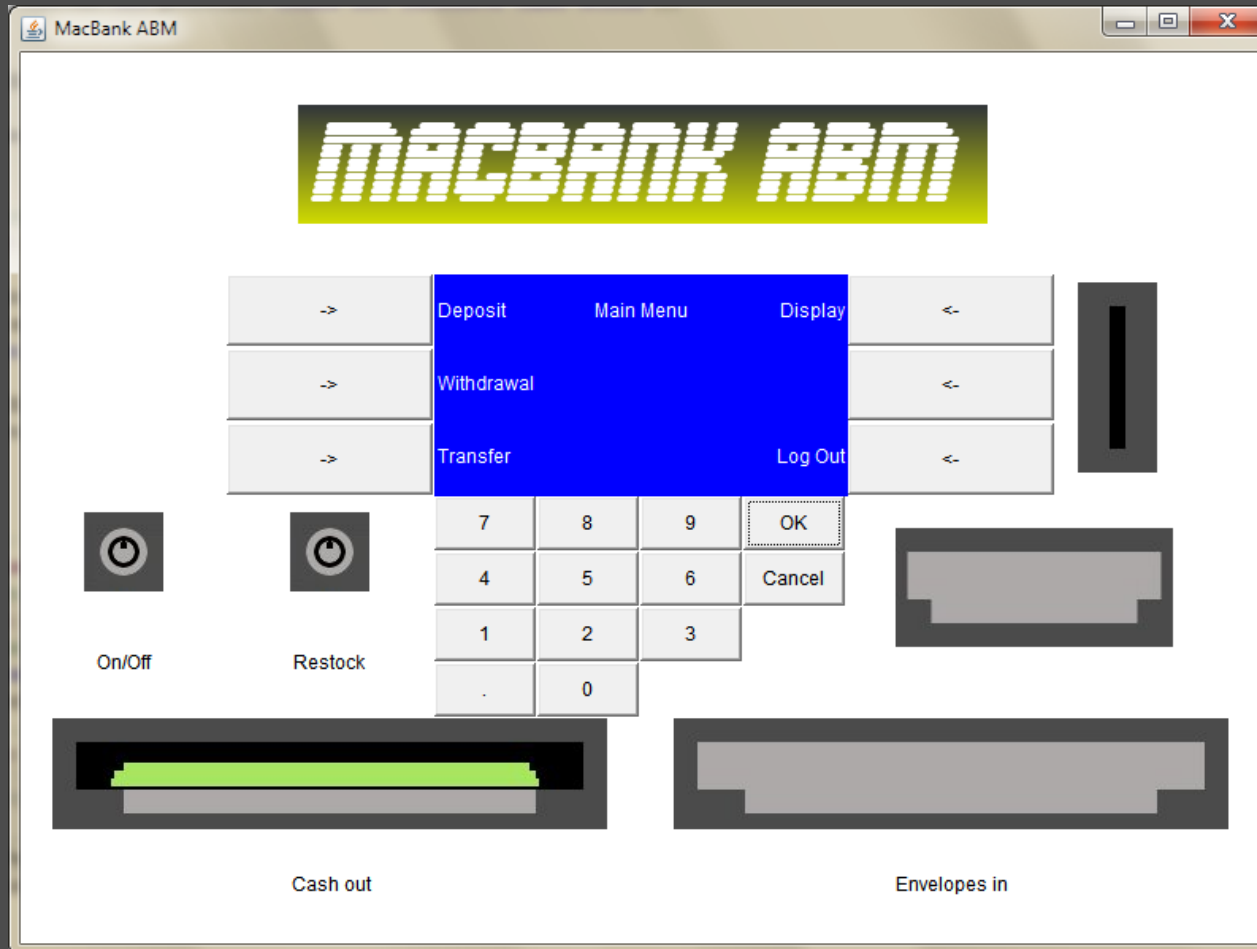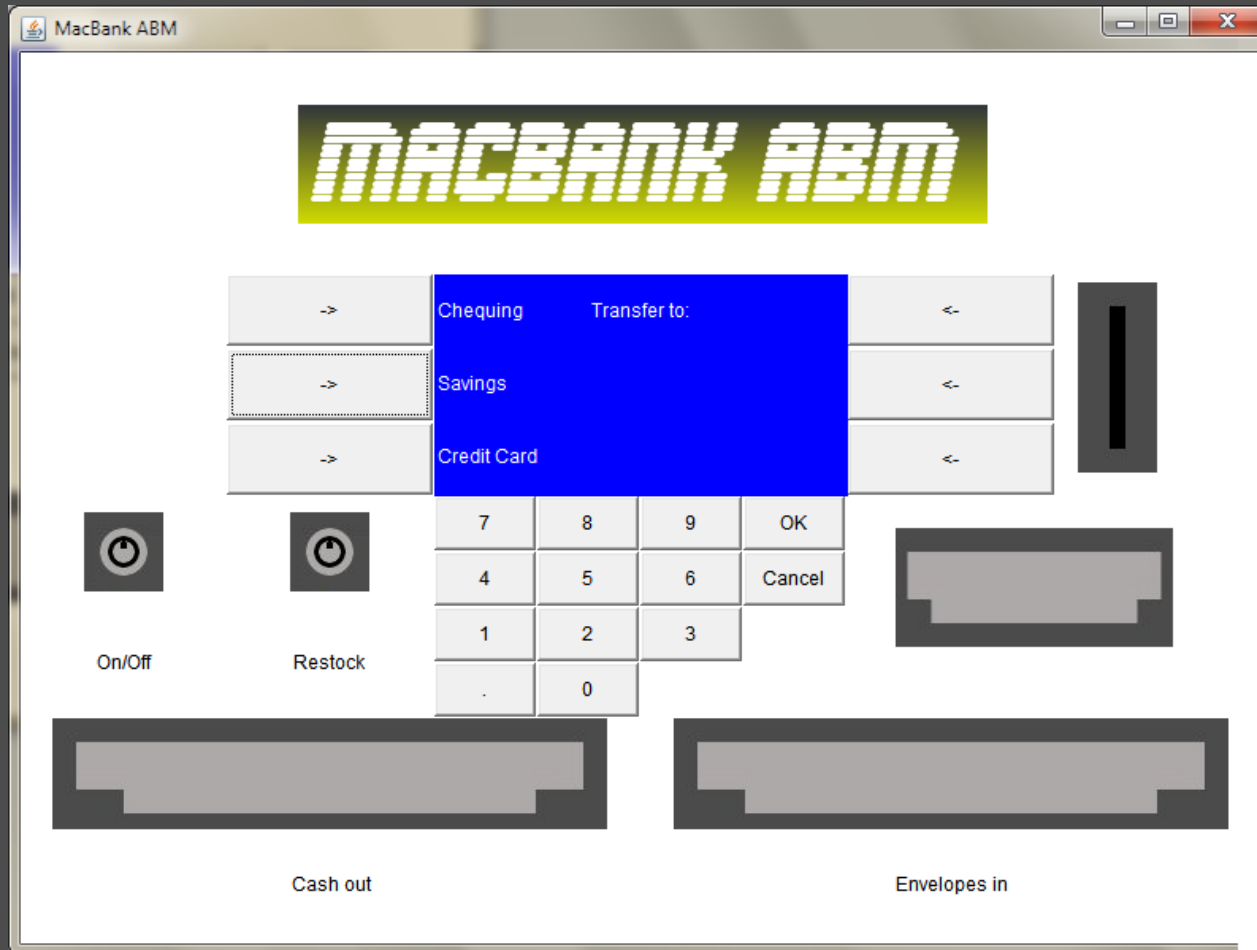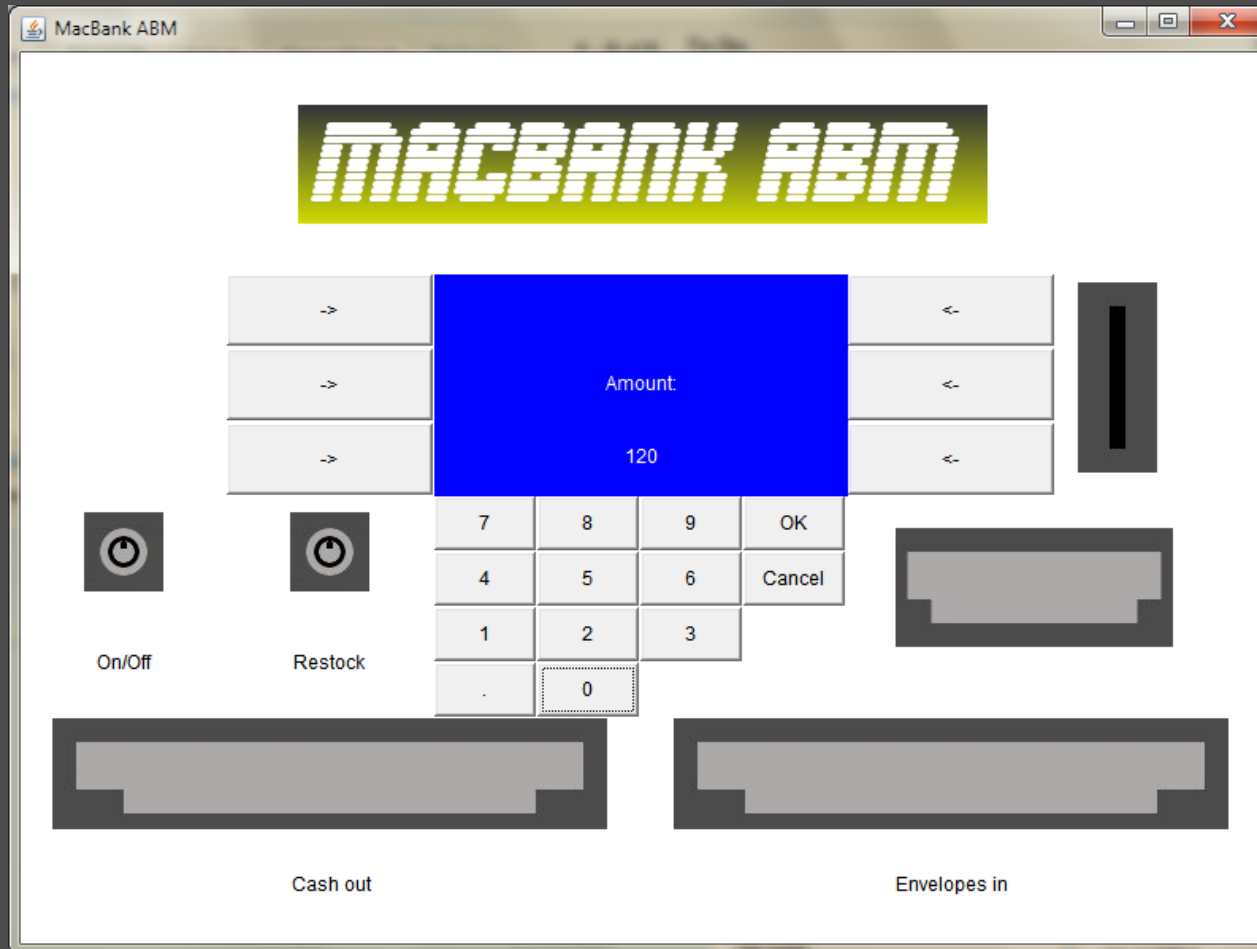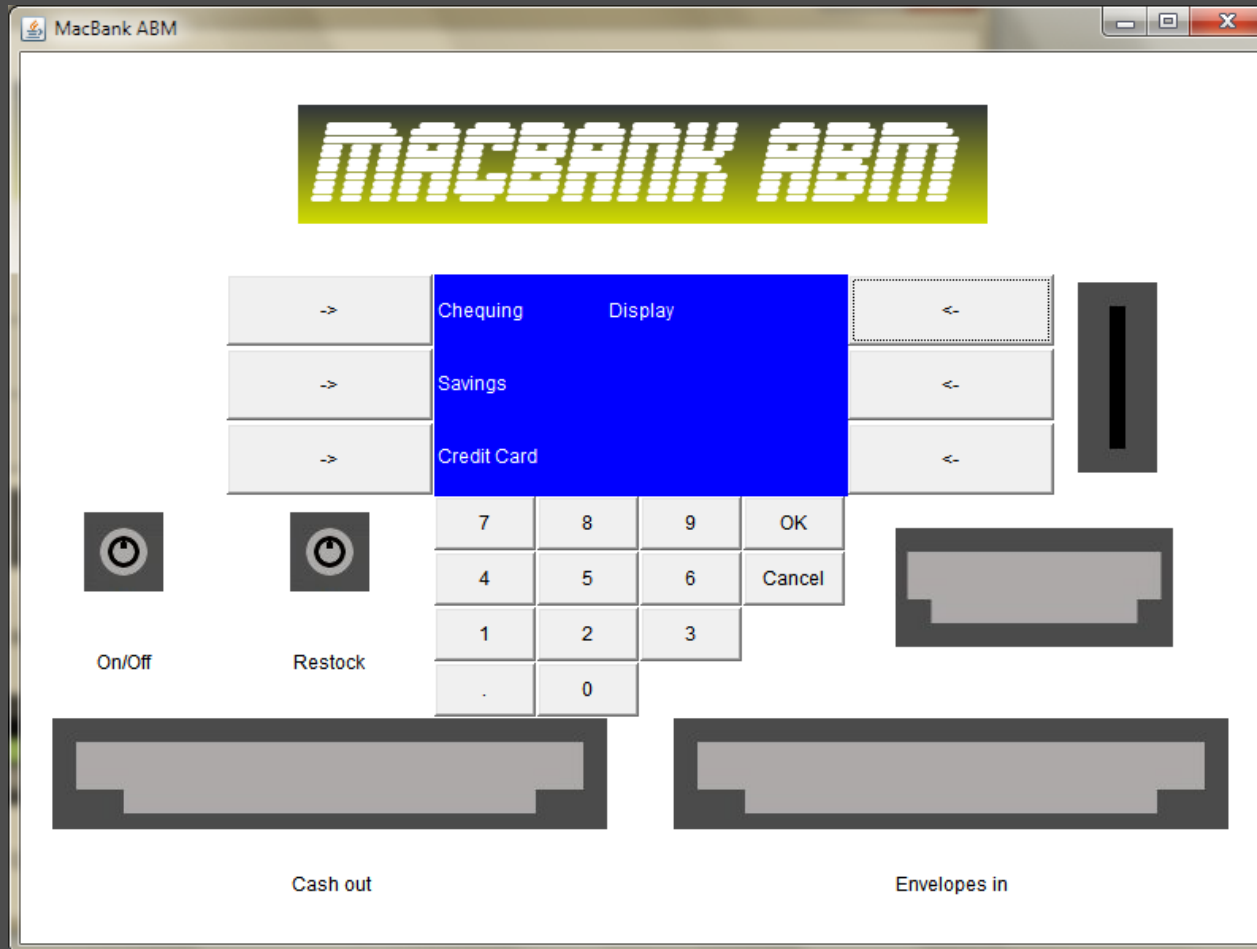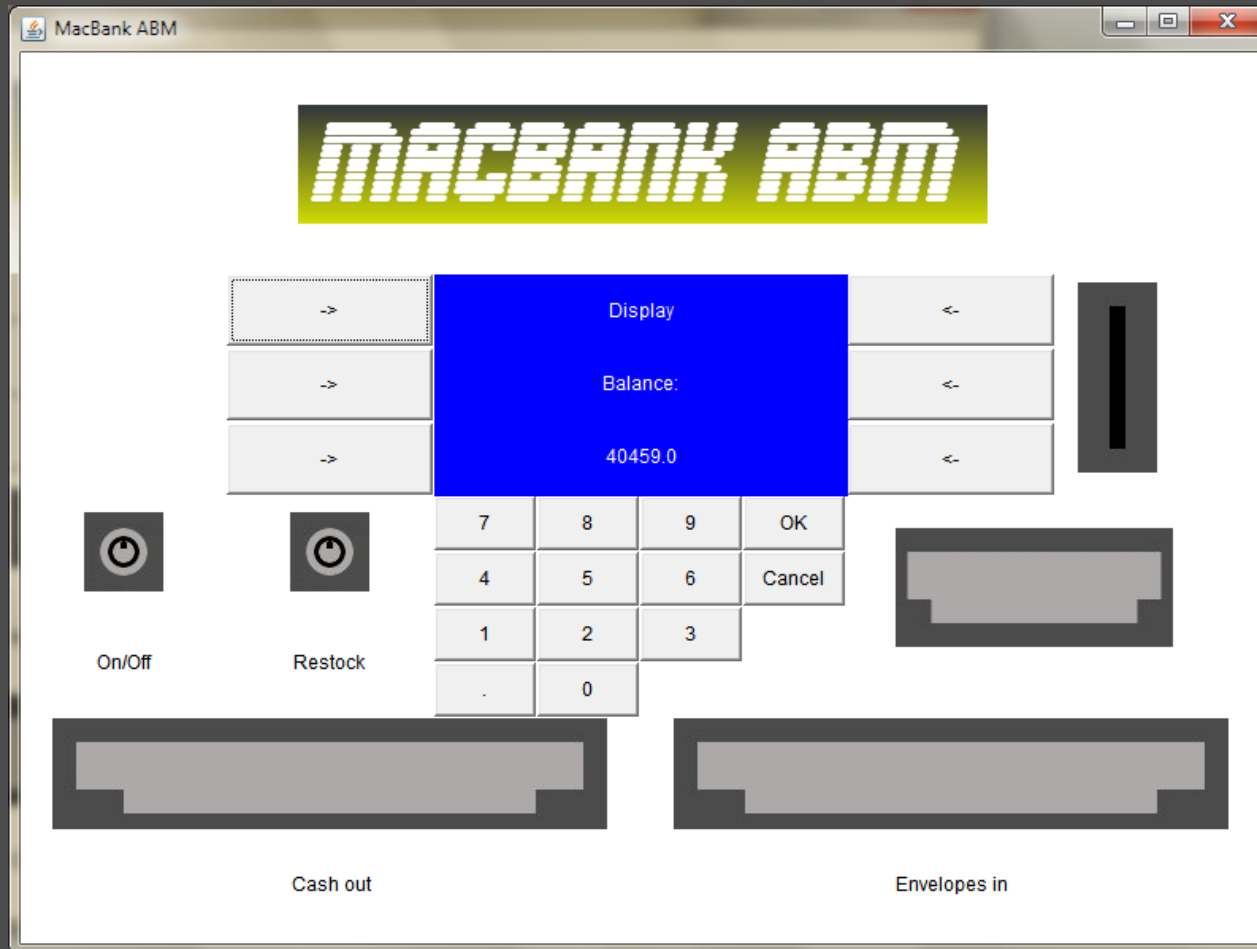# Deposit
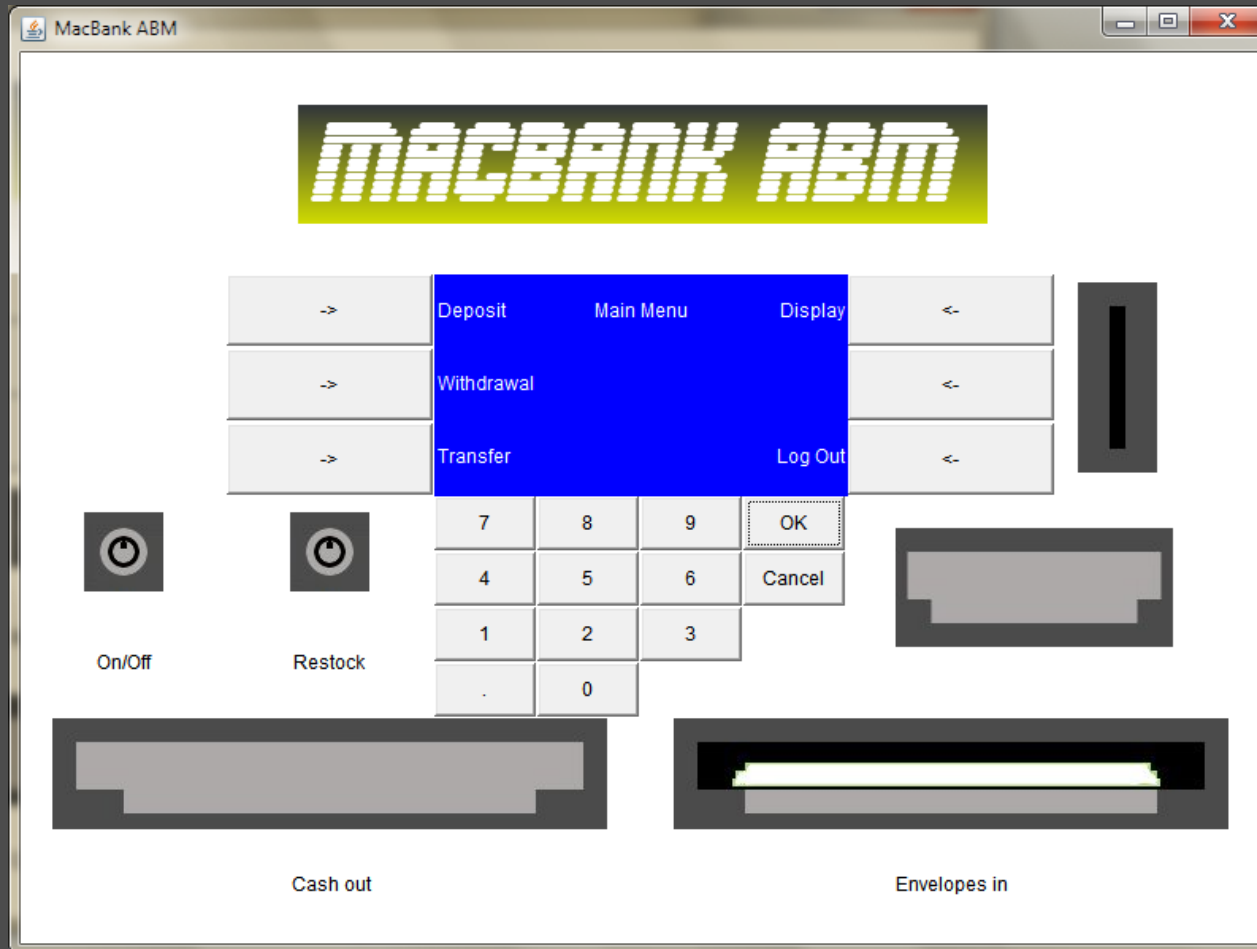
# Withdrawal

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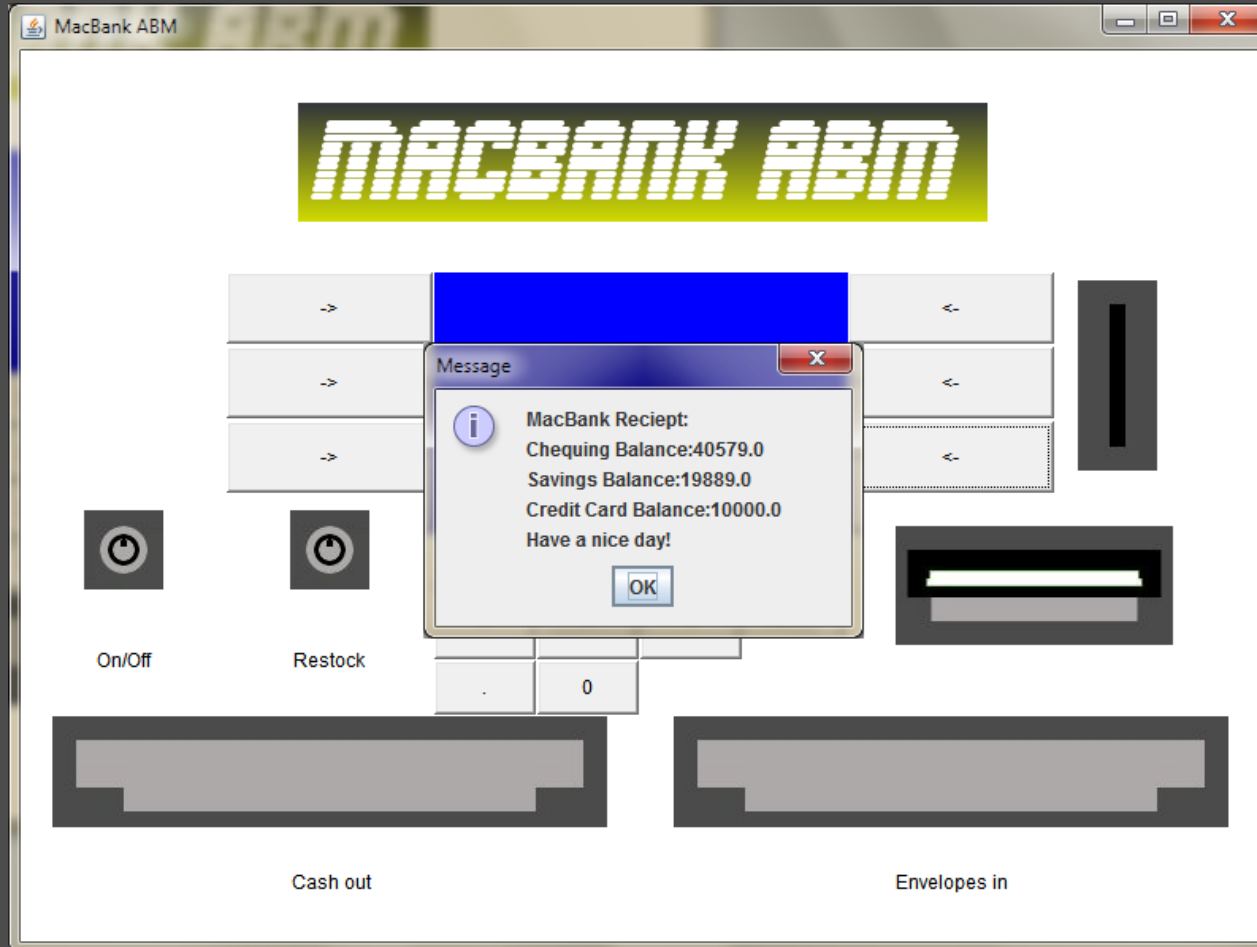
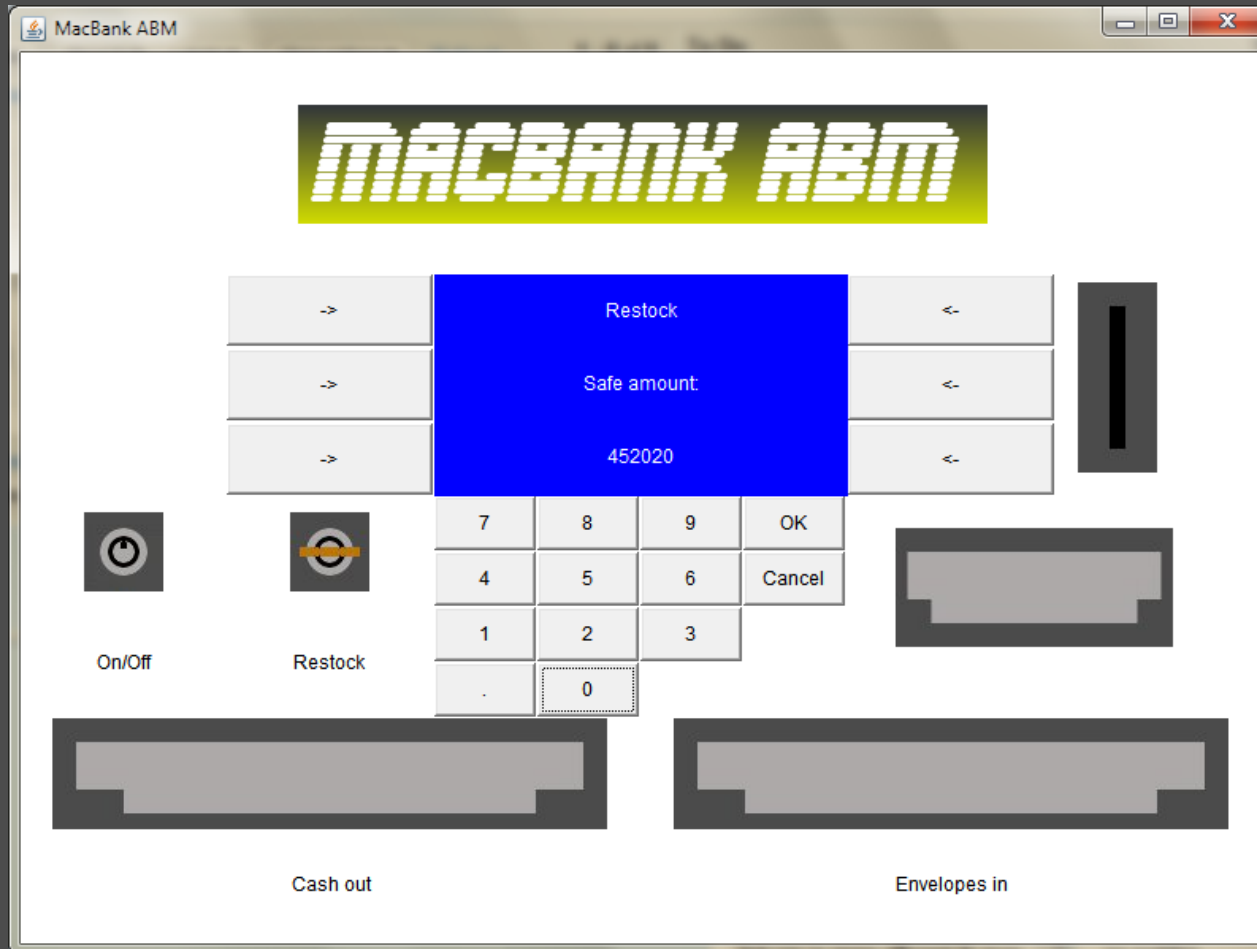# Transfer
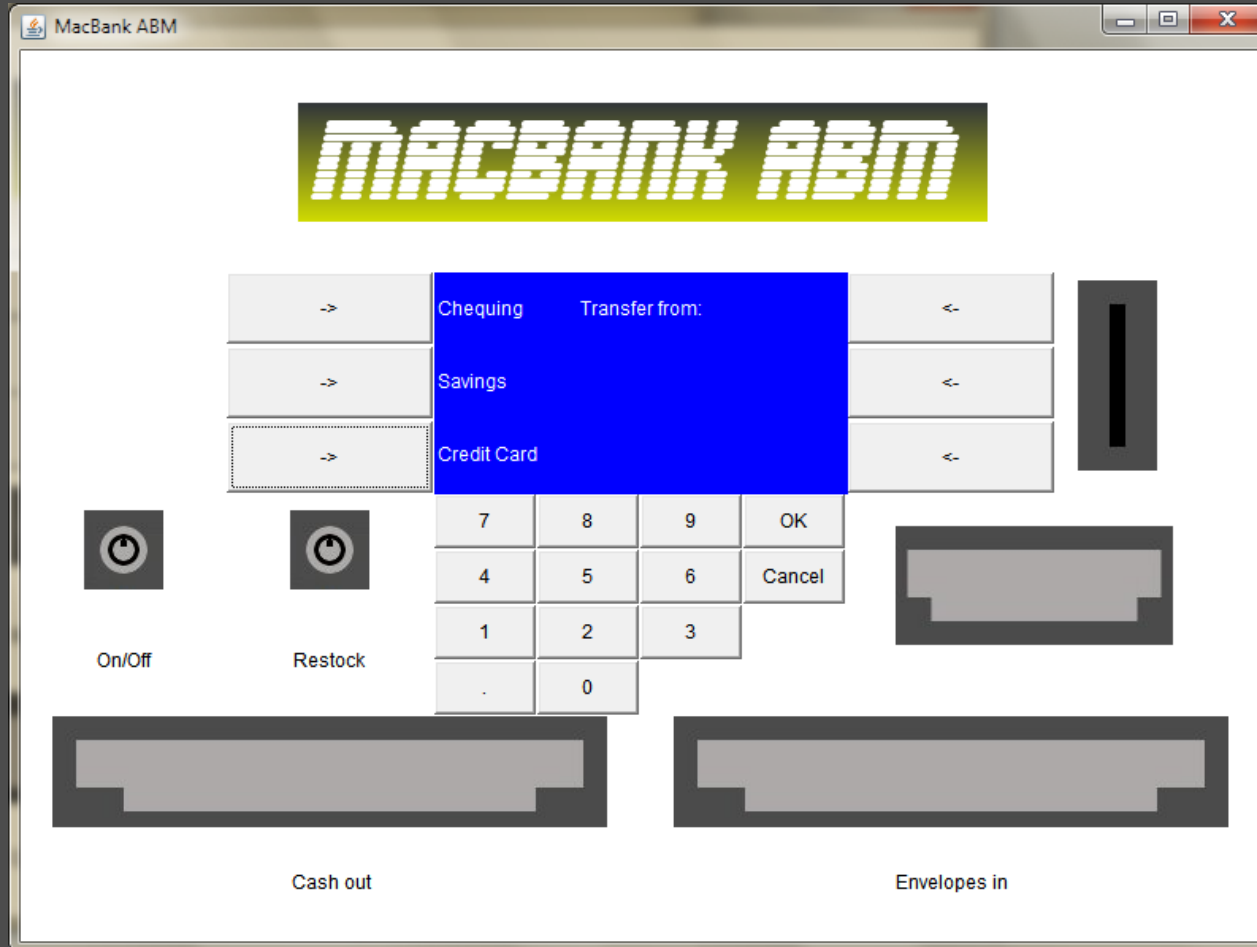
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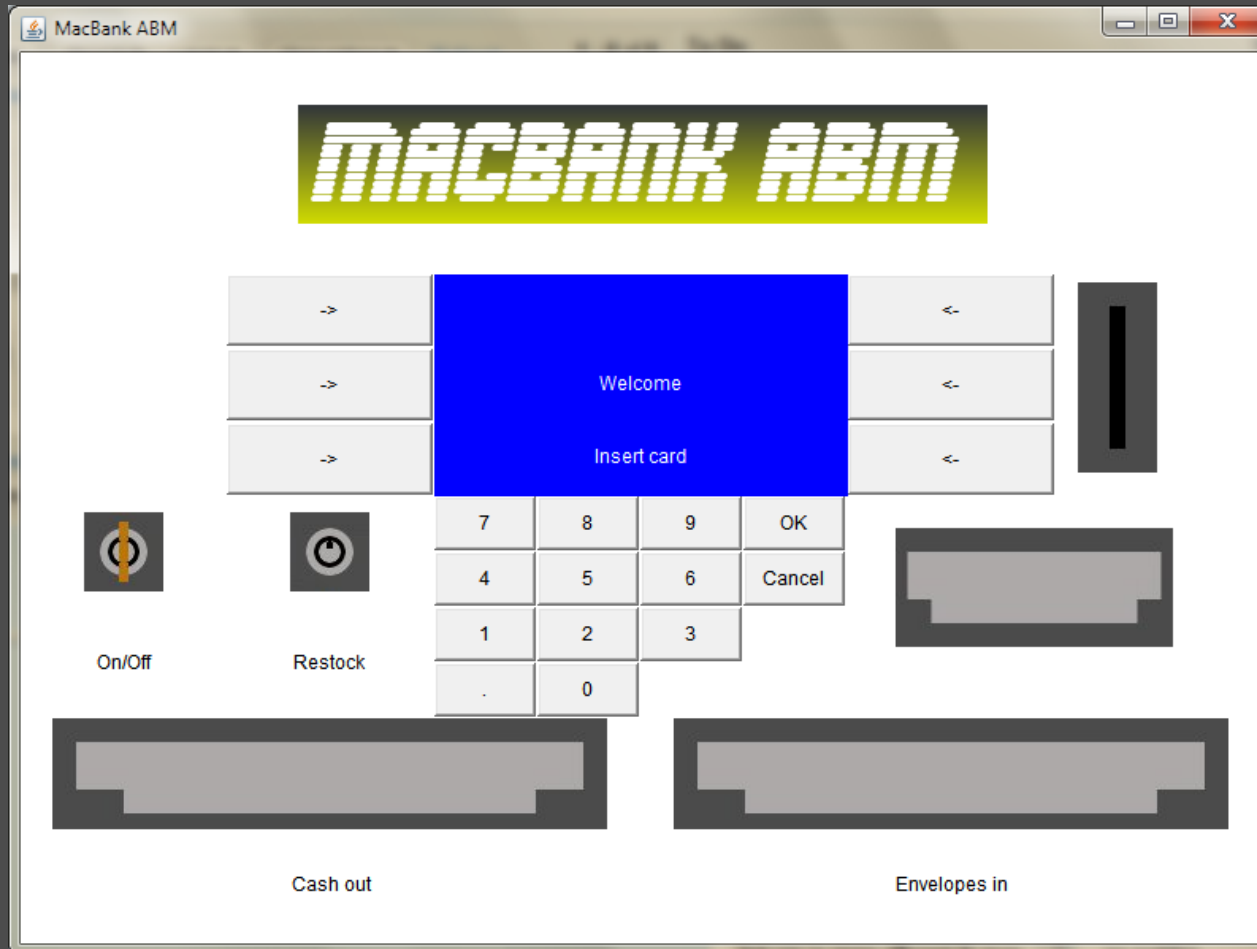# Transfer

# Display

# Display

# Log Out

# Restock

# Switch Off

# Conlusion

- Software development involves more than coding
- Software documentation process is provides excellent organization before implementation.

Suggestions for improvement:

- For some of us, this is currently our fourth ABM implementation in either Java or C.
- A previously unsolved problem would provide a better motivation for proper software documentation.

# Conclusion

- Questions?