



ATM

BA part for ATM project

ABSTRACT

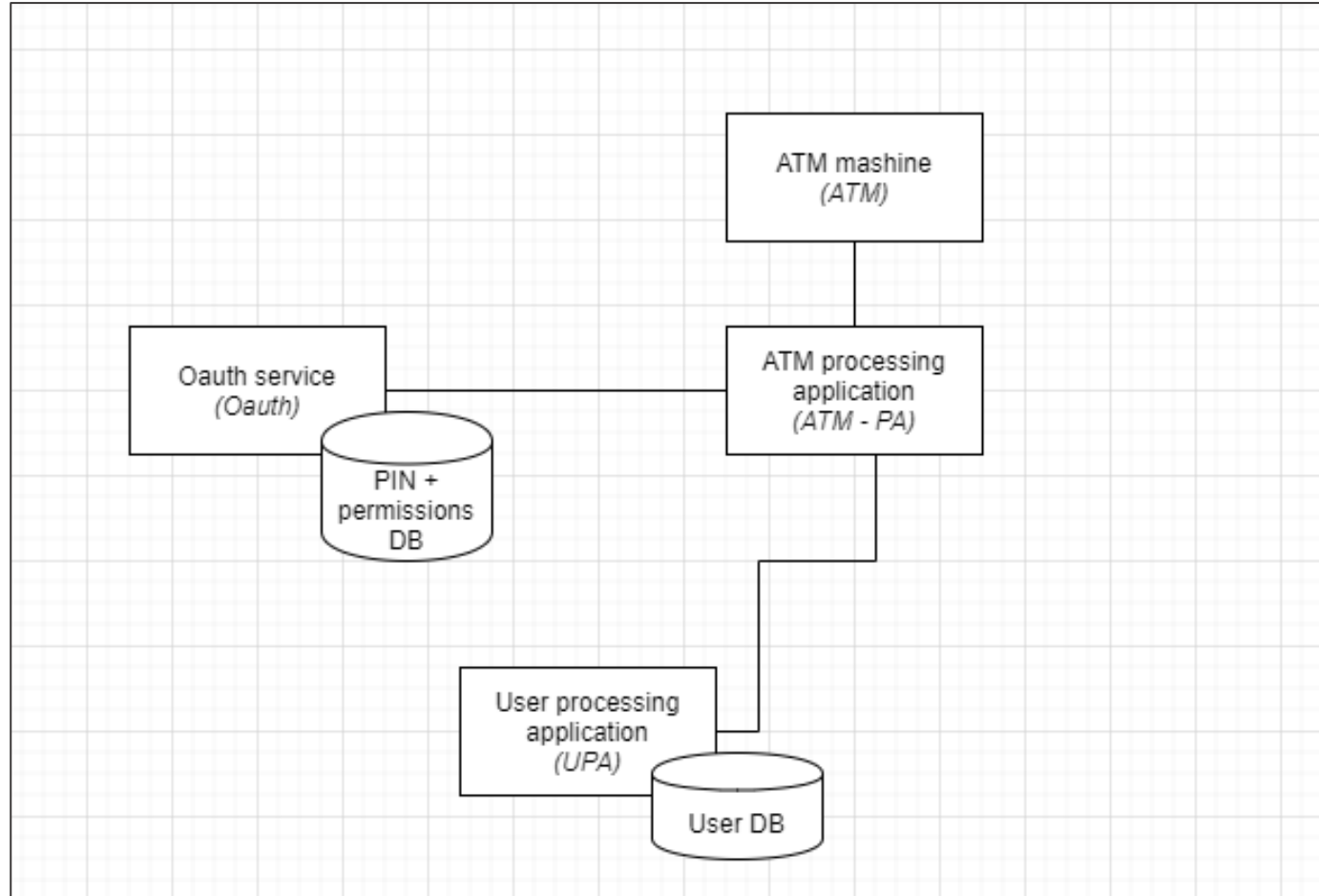
Here are some stories for ATM project. The list of US you can find below. Additionally, there some diagrams like sequence and components

Kniazeva Viktoriia

User Stories list

1. User authentication on ATM
2. Money withdrawal (without authentication)
3. Checking account balance (without authentication)
4. Changing PIN number (without authentication)

Architecture suggestion



Picture 1. Components diagram: architecture draft

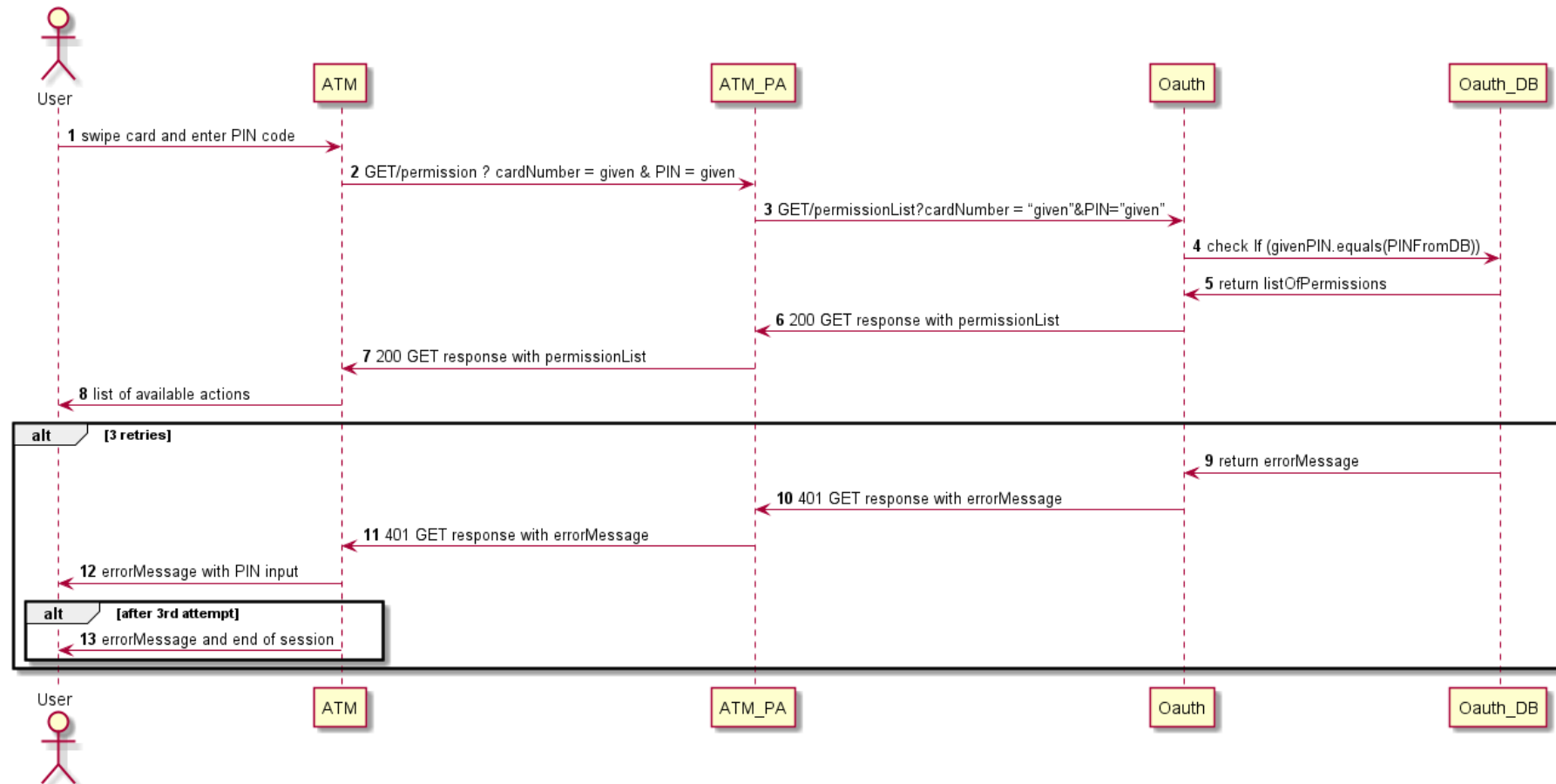
User Stories:

US-1: user authentication on ATM

Business Scope	As a user I want to have authentication concept implemented for my card protection so that I can take some actions with my account via ATM only after being authenticated
Acceptance criteria	<ul style="list-style-type: none"> • User can login by swiping the card to the ATM • PIN mask is displayed, PIN is masked with “*****” after 2 seconds (mockup 1) • PIN is checked • In case of incorrect PIN, the error notification is displayed (mockup 3) • After 3 attempts (PIN), session is closed, and corresponding error is displayed (mockup 4) • All scenarios are covered by tests and work as described
Test scenarios	<p>Scenario 1 – success case:</p> <p>GIVEN: ATM works and card reader is ready to be used GIVEN: swiped card and card owner can be recognized WHEN: card is swiped AND ATM recognized the owner THEN: ATM sends GET/permissions ?cardNumber = “given”&PIN = “given” request to ATM-PA THEN: ATM-PA sends to Oauth GET/permissionList?cardNumber = “given”&PIN=”given” redirecting it to Oauth -> THEN: Oauth checks: If (givenPIN.equals(PINFromDB)) { return listOfPermissions; } Else { return errorMessage;} – <i>part of sc. 2</i> THEN: Oauth returns 200 with GET response body to ATM-PA THEN: ATM-PA returns 200 with GET response body to ATM THEN: ATM displays the list of available options to the user</p> <p>Scenario 2 – fail case:</p> <p>GIVEN: ATM works and card reader is ready to be used GIVEN: swiped card and card owner can be recognized WHEN: card is swiped AND ATM recognized the owner (1)THEN: ATM sends GET/permissions ? cardNumber = “given”&PIN = “given” request to ATM-PA (2)THEN: ATM-PA sends to Oauth GET/permissionList?cardNumber = “given”&PIN=”given” redirecting it to Oauth -> (3)THEN: Oauth checks: If (givenPIN.equals(PINFromDB)) { return listOfPermissions; } – <i>part of sc. 1</i> Else { return errorMessage;} (4)THEN: Oauth returns 401 with GET error response body to ATM-PA (5)THEN: ATM-PA returns 401 with GET error response body to ATM (6)THEN: ATM displays error notification with PIN input field THEN: repeat steps from (1) to (5) 3 times THEN: after 3rd time session is closed and error notification without PIN input is displayed</p>
Description	<p>Authentication process:</p> <ol style="list-style-type: none"> 1. Swipe card to the ATM reader 2. Enter PIN 3. If PIN is correct -> show available actions 4. If PIN is incorrect -> retry logic -> fails – error and end of session

Precondition	<ul style="list-style-type: none"> • Card reader is in place • User can be recognized by a swiped card to the ATM • User is always known (has bank card)
Dev notes	Env.: dev, test. No deploy to prod

US-1 attachment

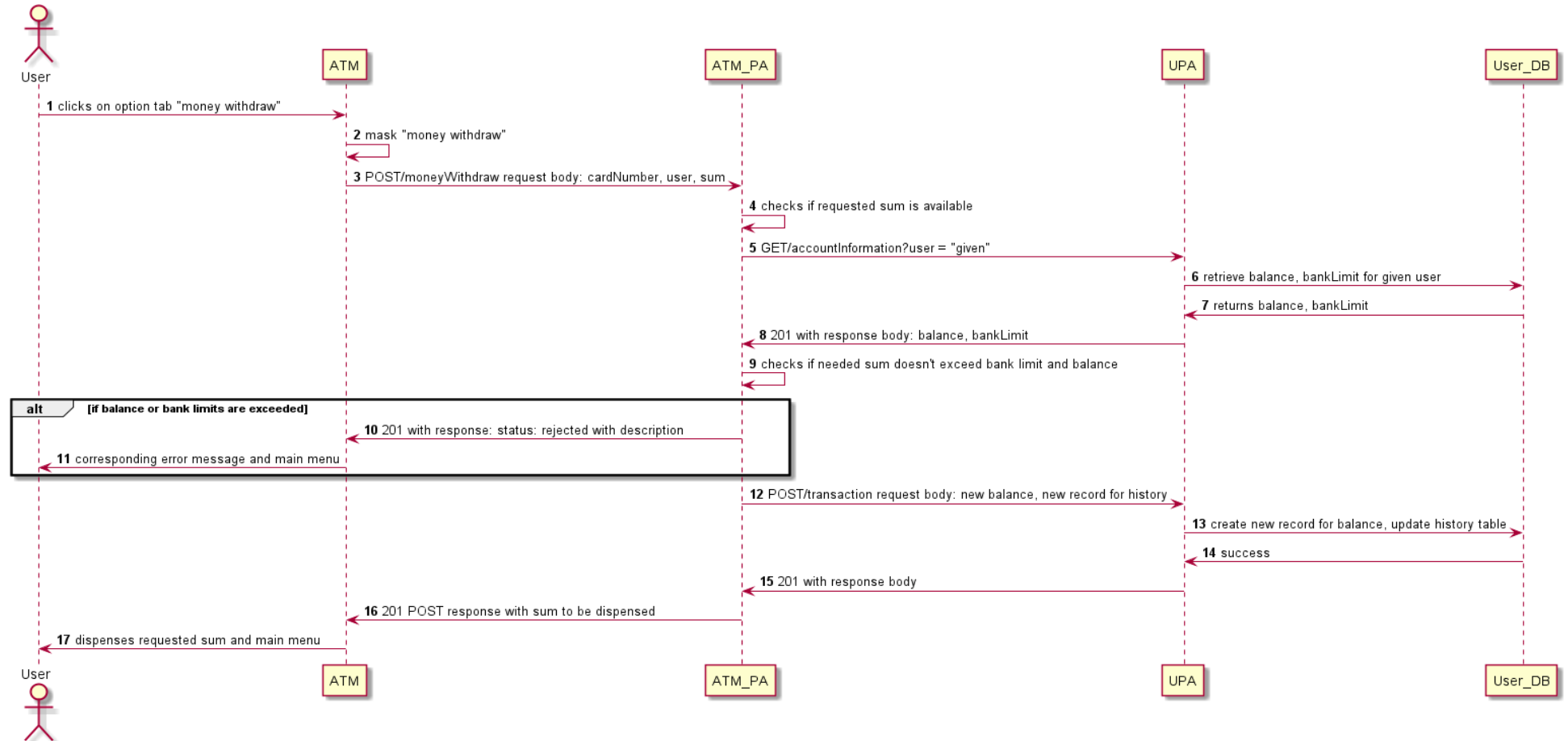


Picture 2. Sequence diagram: authorization flow with alternative. For components shortcuts please look at architecture diagram

US-2: Money withdrawal (without authentication)

Business Scope	As a user I want to have implemented feature with money withdrawal so that I am able to withdraw money from my card but only within my limits
Acceptance criteria	<ul style="list-style-type: none"> • ATM dispenses cash according to requested sum entered by the user but only within some limits defined by a bank and within balance limitations • Cash withdraw mask is displayed (mockup 5) • In case of negative balance or exceeding bank limits specified error notification should be displayed (mockup 6) • After end of operation main menu should be displayed • All scenarios are tested and following sequence diagram logic (see picture 3)
Test scenarios	<p>See diagram (picture 3)</p> <p>To be tested</p> <p>Scenario 1: success case</p> <p>Scenario 2: entered sum exceeds ATM available sum -> ATM technical error</p> <p>Scenario 3: entered sum exceeds balance -> balance error</p> <p>Scenario 4: entered sum exceeds bank limit -> bank limit error</p> <p>Scenario 5: entered sum exceeds balance and bank limit -> result: balance error to be returned</p>
Description	<p>Error description:</p> <p><i>ATM technical error:</i> “Sorry, requested amount is not available in this ATM. Please, contact your bank”</p> <p><i>Balance error:</i> “Sorry, not enough money. Please, try different sum or contact your bank”</p> <p><i>Bank limit error:</i> “Sorry, requested amount exceeds your limits. Please, try different sum or contact your bank”</p>
Precondition	<ul style="list-style-type: none"> • ATM physical money withdrawing functionality is in place • Bank limits and authorization features are in place • Technical error handling is out of scope
Dev notes	Env.: dev, test. No deploy to prod

US-2 attachment

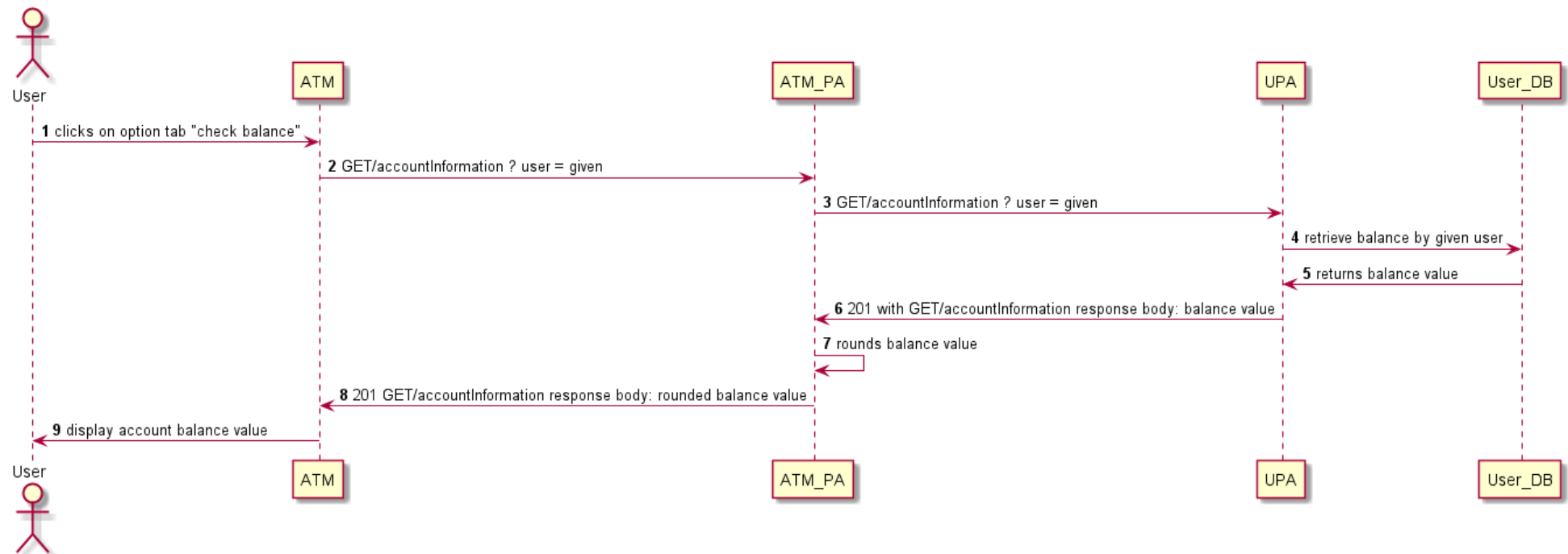


Picture 3. Sequence diagram: money withdrawal flow with alternative. For components shortcuts please look at architecture diagram

US-3: Checking account balance

Business Scope	As a user I want to have implemented feature for checking account balance so that I can check balance of my bank account by swiping the card
Acceptance criteria	<ul style="list-style-type: none"> Balance is correctly displayed if the “check balance” option is selected (mockup 7) Amount to be displayed should be rounded with DecimalFormat(###) – Math rounding In case of some error - standard error notification should be displayed (error handling is out of scope) (mockup 6)
Test scenarios	<p>See diagram (picture 4) To be tested</p> <p>Scenario 1: success case -> balance is displayed (check with data from DB) Scenario 2: rounding check to lower number -> mock with 9.914 – should be 9.91 Scenario 3: rounding check to upper number -> mock with 9.916 – should be 9.92</p>
Description	Standard error notification: “Sorry, the operation is not available for the moment. Please, try again later”
Precondition	<ul style="list-style-type: none"> Authorization features are in place One card – one account (it’s not possible to reassign the card to different account during the session) Technical errors are out of scope
Dev notes	Env.: dev, test. No deploy to prod

US-3 attachment

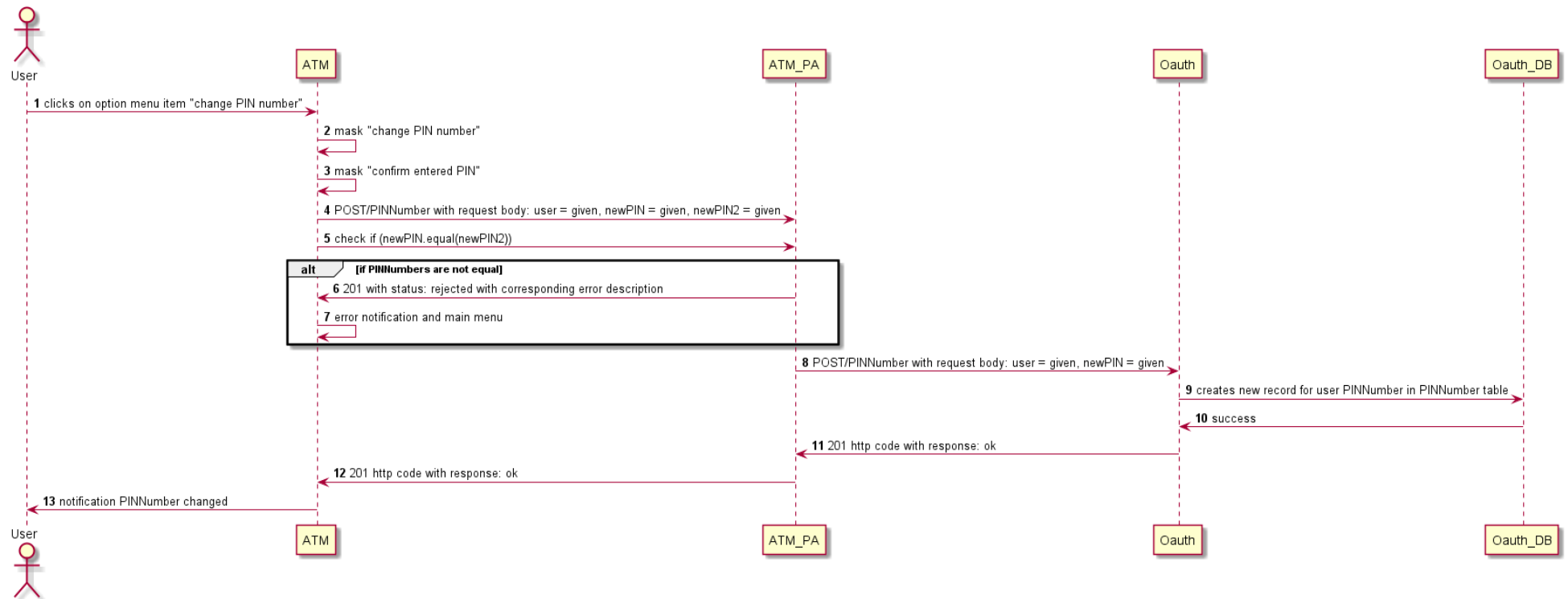


Picture 4. Sequence diagram: Check account balance. For components shortcuts please look at architecture diagram

US-4: Change PIN number

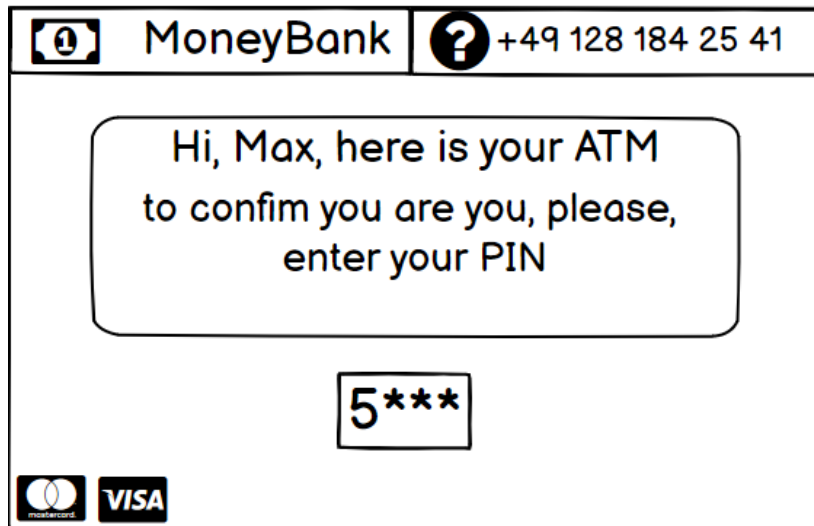
Business Scope	As a user I want to have implemented feature for changing my PIN number via ATM so that I can change my PIN number of my card via ATM
Acceptance criteria	<ul style="list-style-type: none">• Mask for “change PIN number” and “confirm entered PIN” are displayed as designed (mockup 8, 9)• PIN number is masked by “*****”• After PIN is changed success message is displayed• In case of error corresponding error message is displayed (mockup 10, 11)
Test scenarios	See diagram (picture 5) To be tested Scenario 1: success case -> success message Scenario 2: PIN1 != PIN2 -> not matching PIN error message
Description	Success notification: “Great! Your PIN number is successfully changed” Not matching PIN error message: “Sorry, PIN codes you entered are not matching. Please, try again”
Precondition	<ul style="list-style-type: none">• Authorization features are in place• User always has permissions to change PIN number• Technical errors are out of scope
Dev notes	Env.: dev, test. No deploy to prod

US-4 attachment

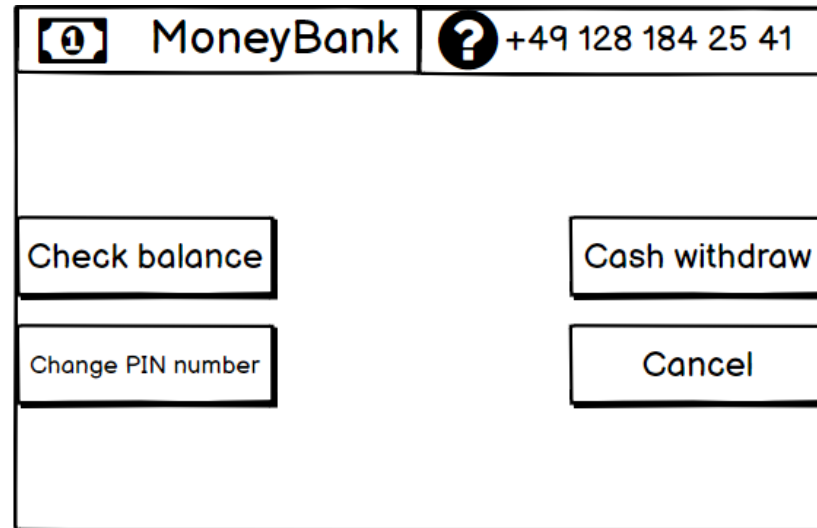


Picture 5. Sequence diagram: Check account balance. For components shortcuts please look at architecture diagram

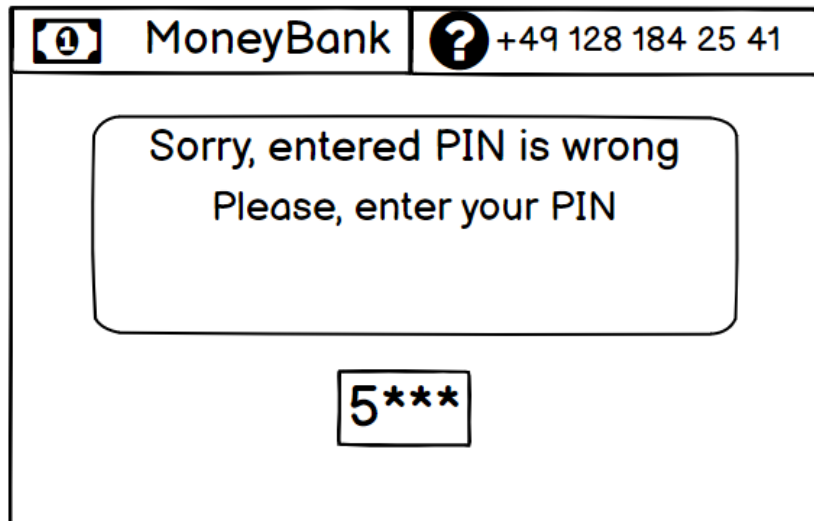
Mockups:



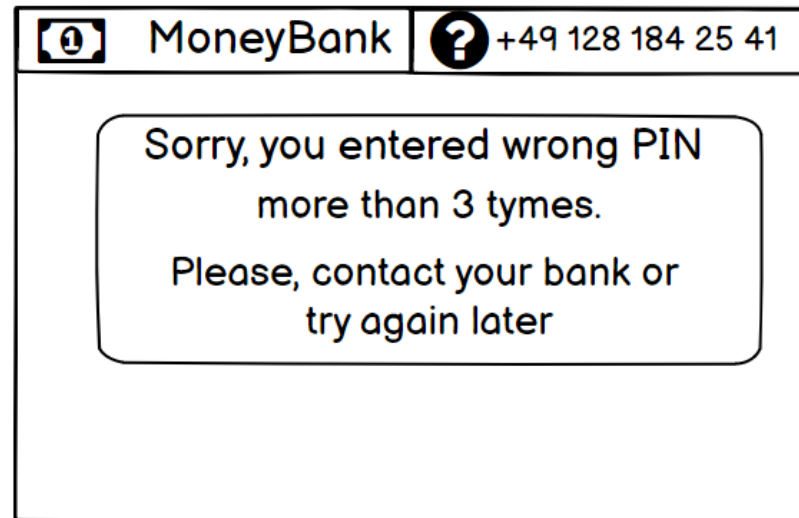
Mockup 1: welcome mask




Mockup 2: main menu




Mockup 3: authentication – wrong PIN



Mockup 4: authentication – error end of session

 MoneyBank


 +49 128 184 25 41


Enter amount to withdraw

100\$

Main menu

Mockup 5: cash withdraw – enter amount


 MoneyBank


 +49 128 184 25 41

Sorry,
notification message
(see US)

Main menu

Mockup 6: standard error mask (text see in US description)

 MoneyBank


 +49 128 184 25 41


Your account balance

9.91 \$

Main menu

Mockup 7: check account balance

 MoneyBank


 +49 128 184 25 41


Please, enter new PIN

4***

Main menu

Mockup 8: Change PIN number – enter PIN number

 MoneyBank


 +49 128 184 25 41


Please, confirm your PIN

4***

Main menu

Mockup 9: Change PIN number – confirm entered PIN number

 MoneyBank

 +49 128 184 25 41

Great! Your PIN number
successfully changed

Main menu

Mockup 10: Change PIN number – success

 MoneyBank

 +49 128 184 25 41

Sorry, PIN codes you en
are not matching. Please,
try again

Main menu

Mockup 11: Change PIN number – error