Banking applications

Analysis of the login area

softax

Contents

softax

Introduction

To be able to use most of the functions of the mobile banking application, we must log in first. According to our research, the standard methods of logging in is currently the PIN code and biometrics. We will analyze these processes for each bank, compare them and indicate solutions worth popularizing and those better avoided.

In addition, we also checked that each of the analyzed solutions offers a preview of the account state before logging in. We will look at whether this solution is safe and convenient, and where individual banks focus their attention – on accelerating the process of logging in or on actually providing information about the account balance without logging in.

In the study, we considered 8 applications of the largest Polish banks, which covers approx. 14 million users, i.e. about 80-90% of all users of banking mobile applications in Poland.

The following analysis is a comparison of these banks. And now to the point.

soft ax

Summary of survey findings

01 The biggest difference between banks is the ability to log in with biometrics right from the start screen. Some banks allow this, others do not, presumably focusing on making it easier to access pre-login functionality.

02 There are significant differences in the processes used to manage the login itself and the method of accessing the account balance before logging in.

03 The implementation of the login process in each of the examined banks is at least correct, we did not detect any serious usability errors, but no application was able to avoid minor or major stumbles.

04 All banks offer a view of the account balance before logging in, although this functionality differs in scope and in the way the data are made available.

soft ax

Test devices and testing time

We tested only Android banking applications due to its popularity in Poland (we didn't focus on appearance but rather on functionality and usability, so differences between UX in IOS and Android would slightly affect the prepared summary and conclusions). Within this we used:

- Xiaomi Mi10 (Android 10)

- POCO F2 Pro (Android 10)

- Samsung Galaxy A6+ (Android 10)

The research took place on February 15-28, 2021, during the tests the latest versions of banking apps from the Google Play store, available at the time of testing, were used.

soft ax

Login area analysis for each application

For each bank, we have prepared several dozen slides with commented screens presenting the analyzed processes.

soft ax

Login process

Login process in general

The login process is the most frequently used functionality of a banking application (even though some services are also available without logging in). What are the issues related to the customer experience in terms of ensuring peace, safety and comfort (efficiency and speed of service) in the analyzed applications?

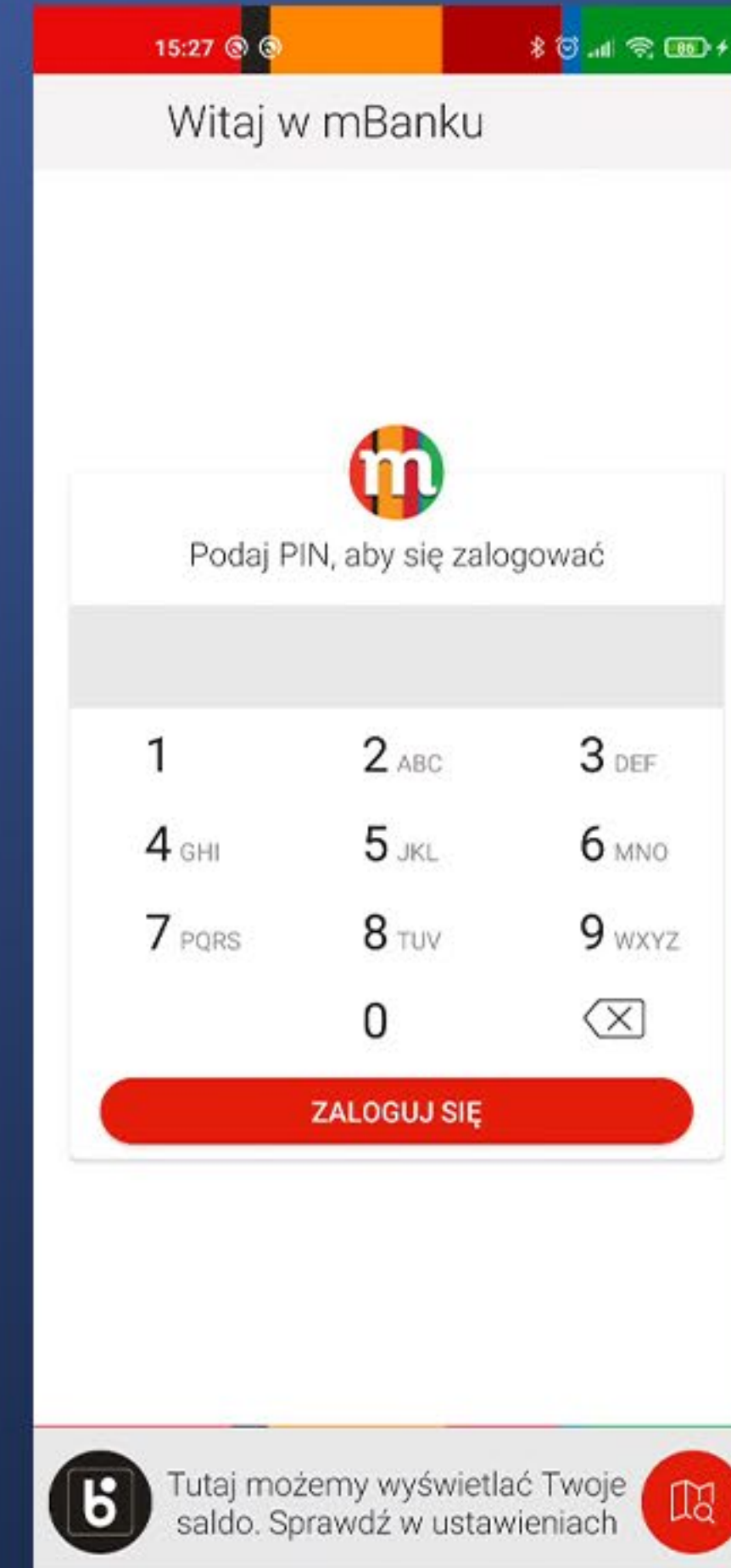# Application identification

Login process in general

To have a sense of control over the situation, the customer must first be aware of which bank application he is working with. All analyzed banks present on the login page smaller or larger logos of their institutions, but there are also some problems here.

softax

Application identification

mBank uses only a short stylized logo with the letter
„m" and the greeting „Welcome to mBank" instead
of the full logo with the name.

On the plus side in the status bar (at the very top)
there is a colorful pattern from the brand's visual language
(which is also used on all subpages of the application).
This is a good solution.


soft ax

Application identification

In the Millennium Bank application, the institution's logotype is obscured by an advertisement one second after its launch. Later, only the color language of the brand is used for identification. It is not enough.

soft ax
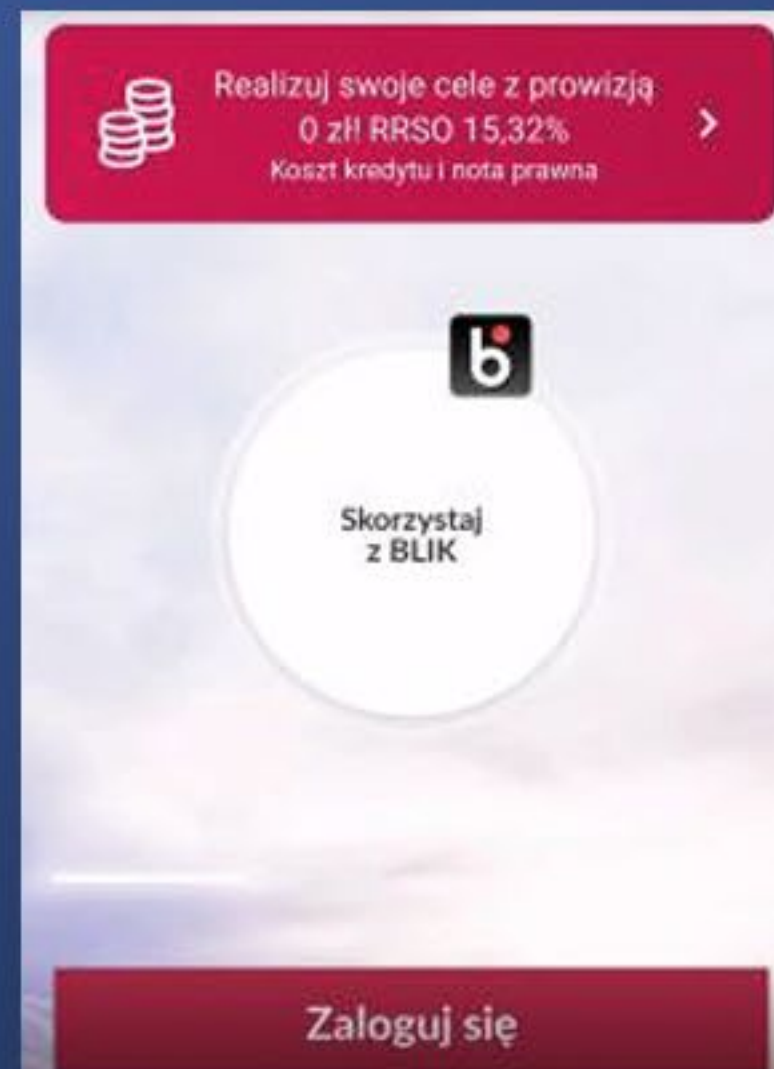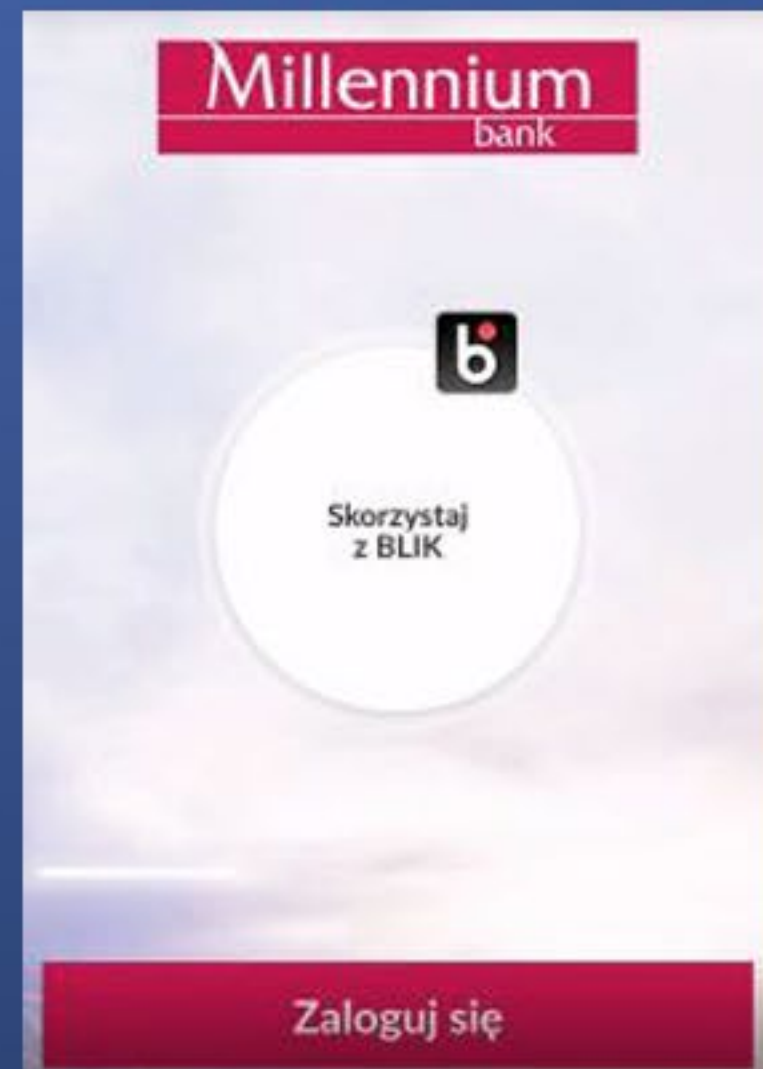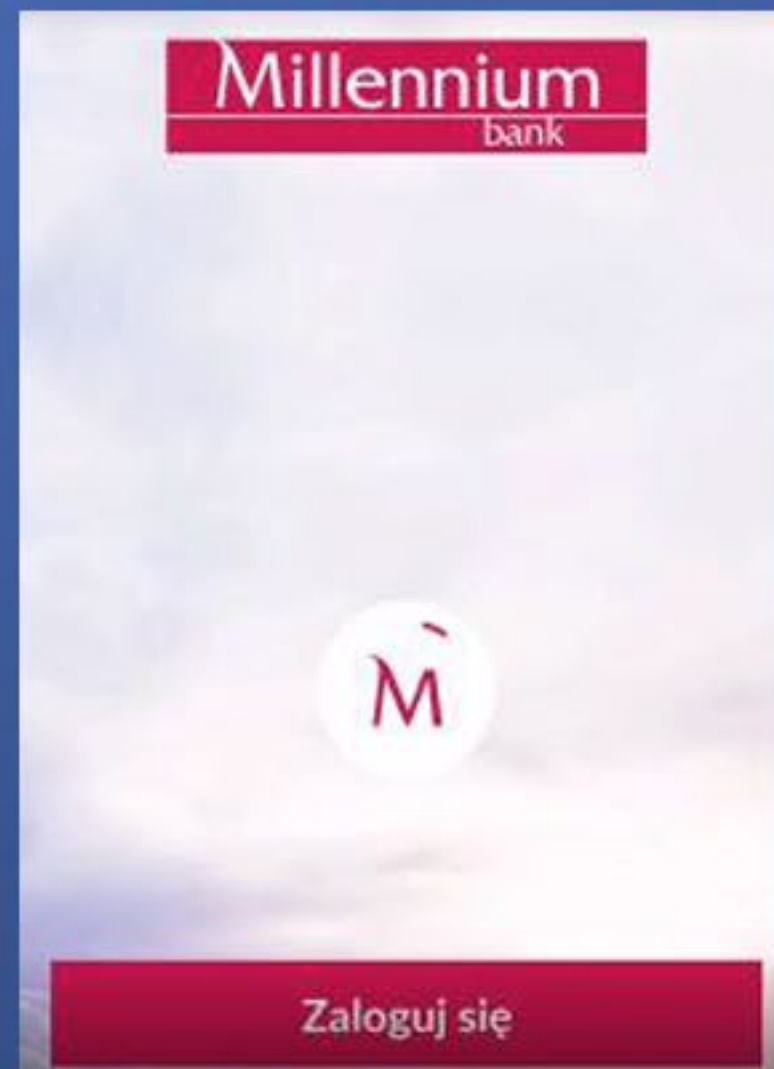
Visibility of the Login button

The next step is to log in. The Login (ZALOGUJ) button, if its use is required to login, should be easily visible and easily accessible. The client shouldn't be looking for it. In most banks (as in the case of Santander) the login button is wide – at the bottom of the screen and stands out in color - that's what it is about. In this form, it is also easily accessible when using the device one-handed – it is within the reach of a thumb (and this is important for quick logging in). In addition, it is convenient for both left and right-handed people.


softax
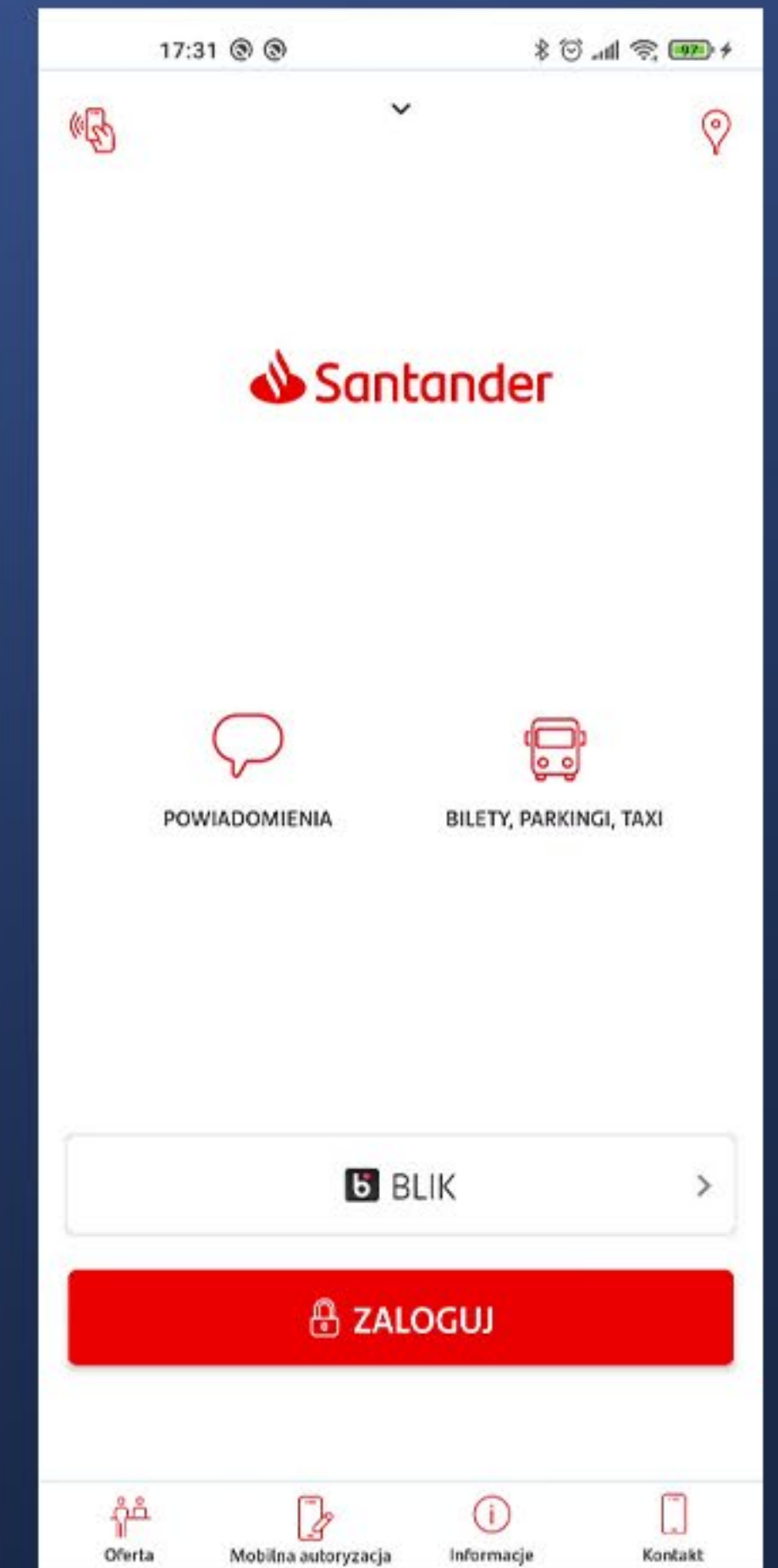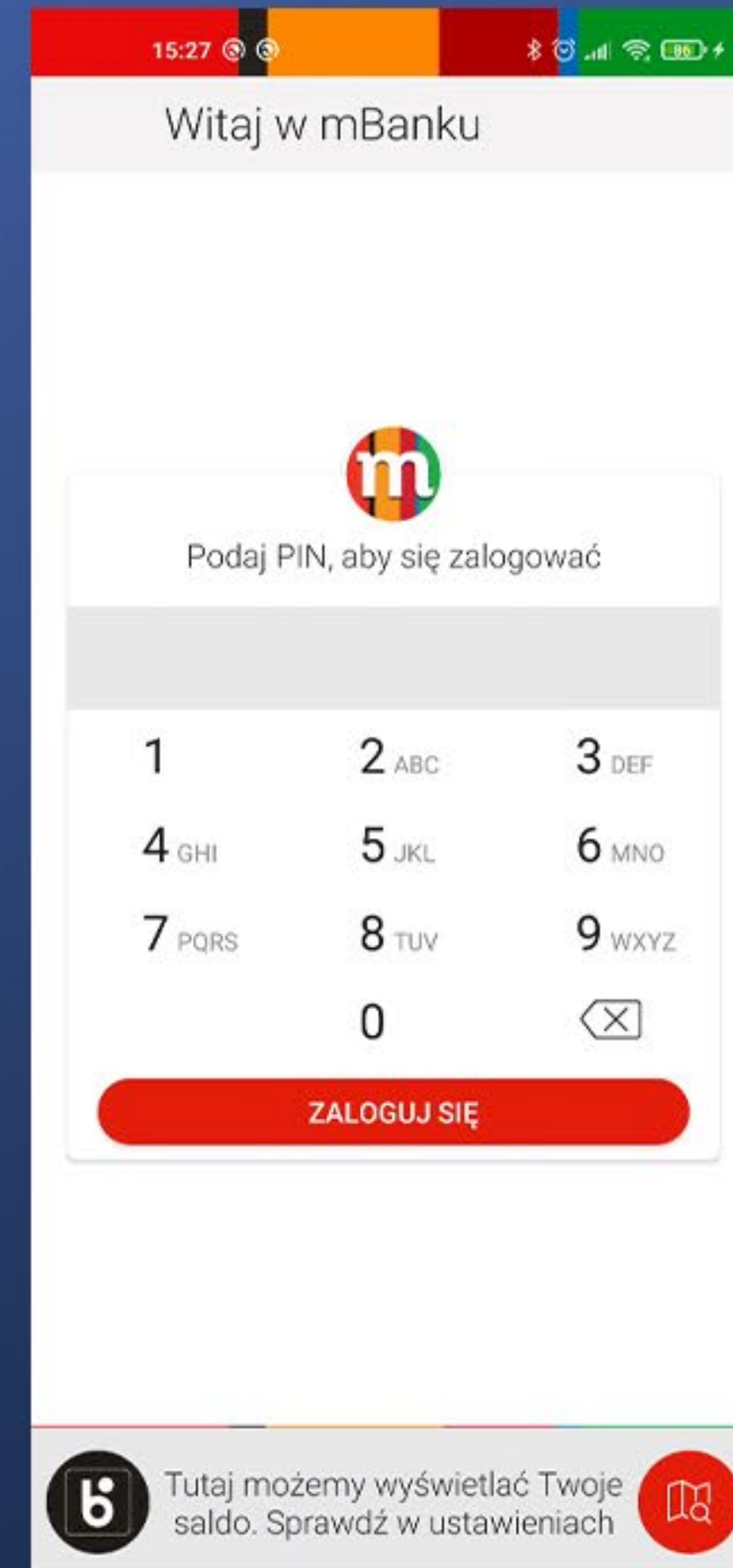
Visibility of the Login button

Unfortunately, there are problems with this button in two cases. It looks the worst in the ING Bank application - the Login button is in the upper right corner, it is small, and it does not stand out visually. In addition, it is quite difficult to access, with one-handed operation it is practically out of reach.

In the Alior Bank application, the login button is in the right place, but it is implemented in the form of a padlock icon, the activity of which is not obvious. That is why the Bank uses the text instruction „Tap the icon to log in with a PIN".

softax
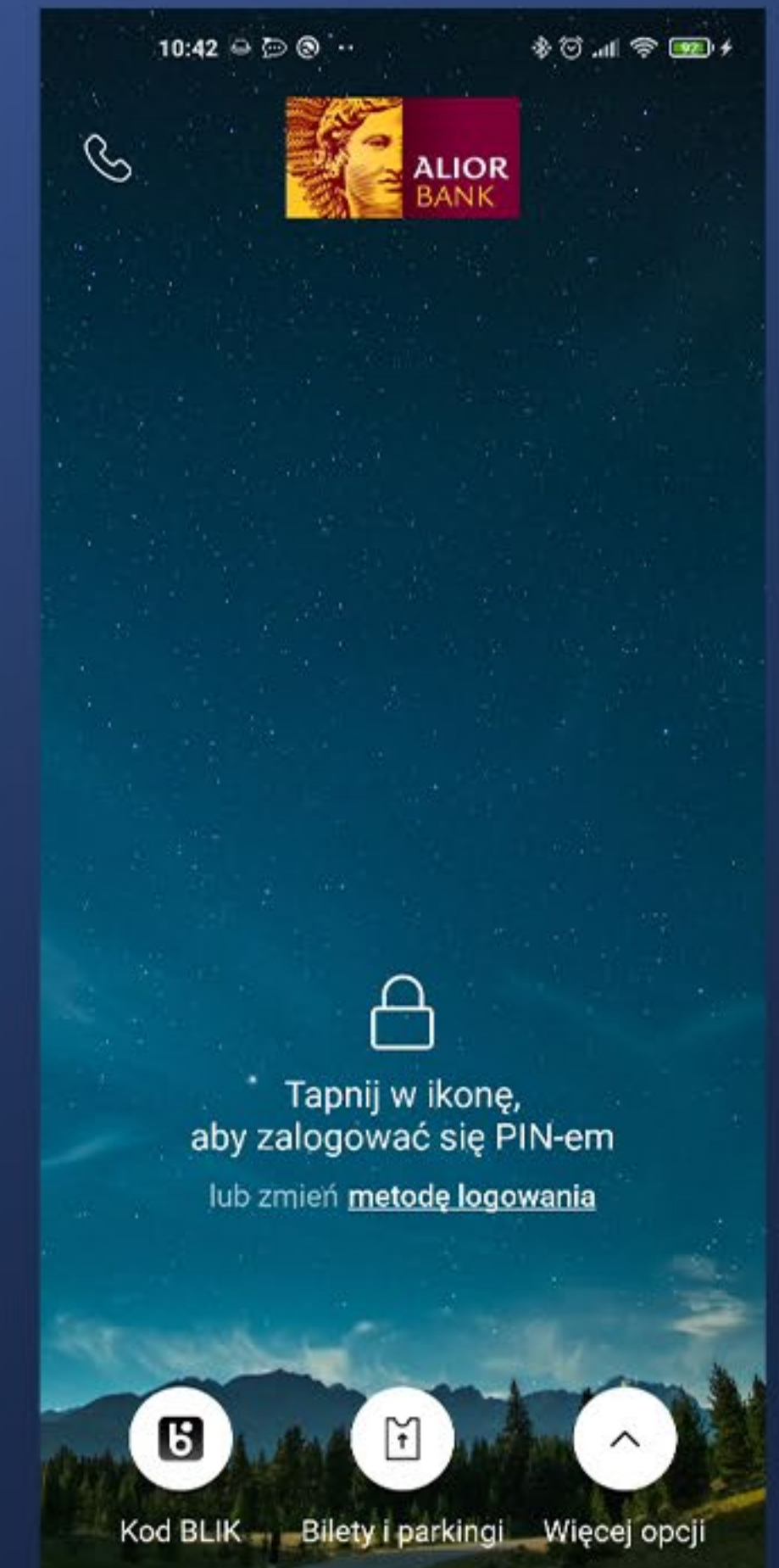
Login with a PIN code

All analyzed banks support logging in with a digital PIN code by default. However, they differ in the number of characters the PIN code must have. Some Banks put convenience as a priority and allow a PIN code with a fixed number of characters (digits) - 4. This is the case of Peopay, Millennium, IKO (PKOBP) and ING. The other analyzed institutions decide to increase the level of security and allow a PIN code of variable length - from 4 to 8 digits for Alior Bank and Santander, from 5 to 8 digits for mBank. Noteworthy is the BNP Paribas application, where the PIN can be 6 to 20 characters long (remembering a sequence of 20 digits is practically impossible for most people).

One has to take into account that a longer PIN increases security, but the challenging issue may be convenience and providing the customer with an adequate sense of control over the login process.

softax

Number of characters in the PIN code

Login with a PIN code

Banks that require a fixed 4-digit PIN

ING   Millennium bank   Bank Pekao   PKO Bank Polski

Banks that allow to specify
a PIN between 4-5 and 8 digits long

ALIOR BANK   mBank   Santander

Bank that allows to specify a PIN
between 6 and 20 digits

BNP PARIBAS

softax

Dedicated/system keyboard

Login with a PIN code

Applications that use a dedicated PIN code keypad

Applications that use the system keyboard

softax

Is it possible to enter a PIN right after starting the app?

Login with a PIN code

Banks use two approaches in their apps. Either the homepage is meant to present some data and provide functionality. Or it is mainly intended for logging in. From the perspective of user convenience and speeding up the login process, the approach, where you can immediately enter your PIN, is better. Among the surveyed institutions, only mBank uses such an approach.

The remaining banks focus on providing, sometimes really considerable functionality, without the need to log in. Some of them, however - PKOBP (IKO), Santander and Millennium allow to start biometric logging in right from the application start screen.

From our perspective, the widespread use of biometric logins reduces the importance of features available without logging in. Biometric logon is fast and simple (it has there a big advantage over PIN), so all institutions should, at least as a configurable option, give the possibility to logon with biometrics right from the start screen. Without having to tap Login button. As far as PIN login is concerned it is a matter of individual approach.

softax
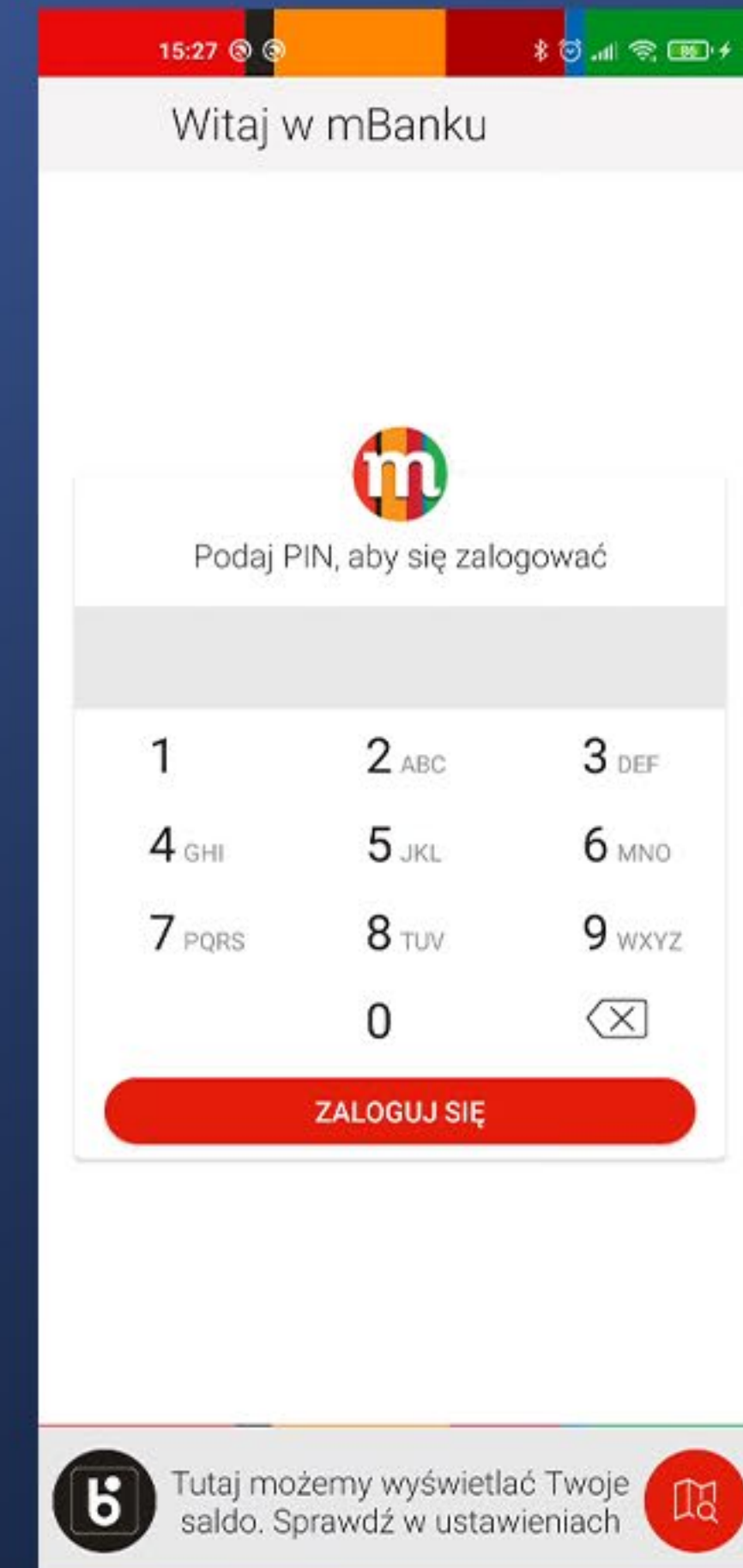
Visual indications of PIN length

Enter Passcode

Another issue regarding the confidence of using the application relates to whether the system visually displays the acceptable length of the PIN code – and in particular, whether it allows you to easily assess how many digits of the code the customer has already entered, and how many of tchem are still to be entered.

This is usually not a problem if the bank in question supports a PIN with a fixed number of characters - 4. Then we see visually refined screens. And this is the case with Peopay, Millennium, IKO, ING.

Other banks allow the customer to choose a PIN with variable length. In this approach it looks worse, but as long as the data actually entered is limited to 8 characters, it is still acceptable.

soft ax

Visual indications of PIN length

Login with a PIN code

From the perspective of the customer's peace of mind, a negative example here is the BNP Paribas Bank application, which allows a PIN code of 20 characters. The presentation visually does not facilitate the control of the entered characters. Of course, fortunately, the client does not have to use such a long code.


softax
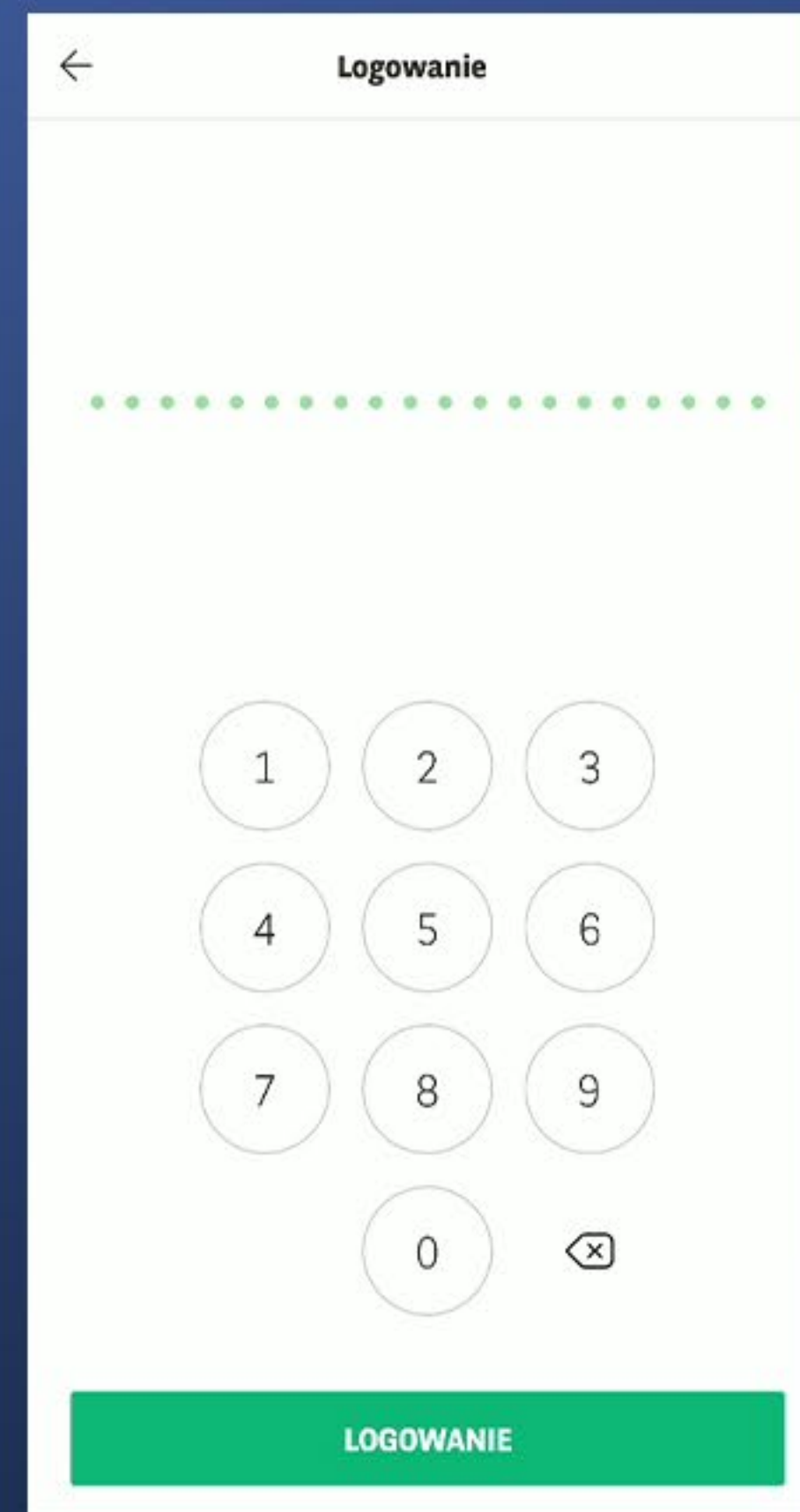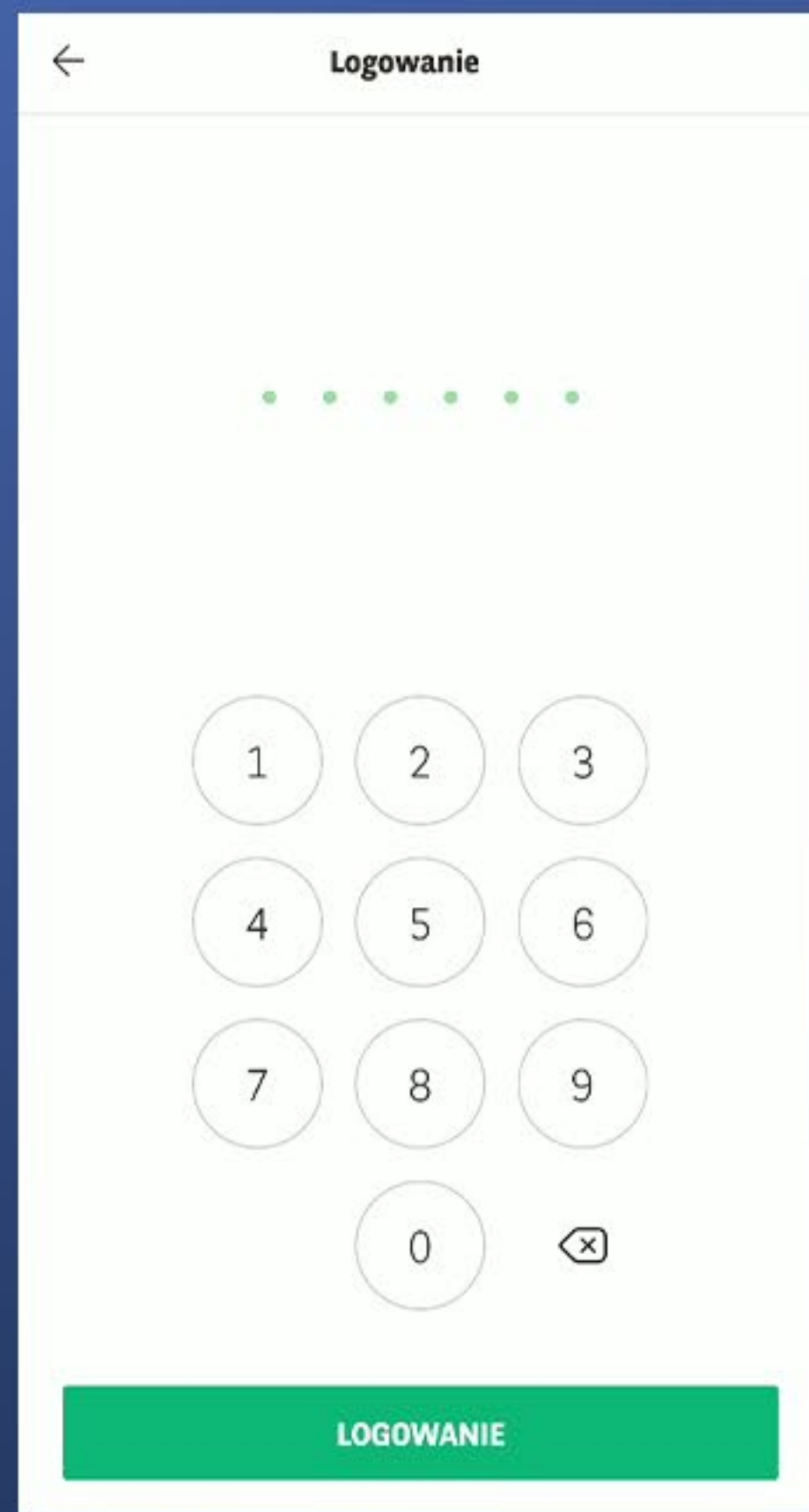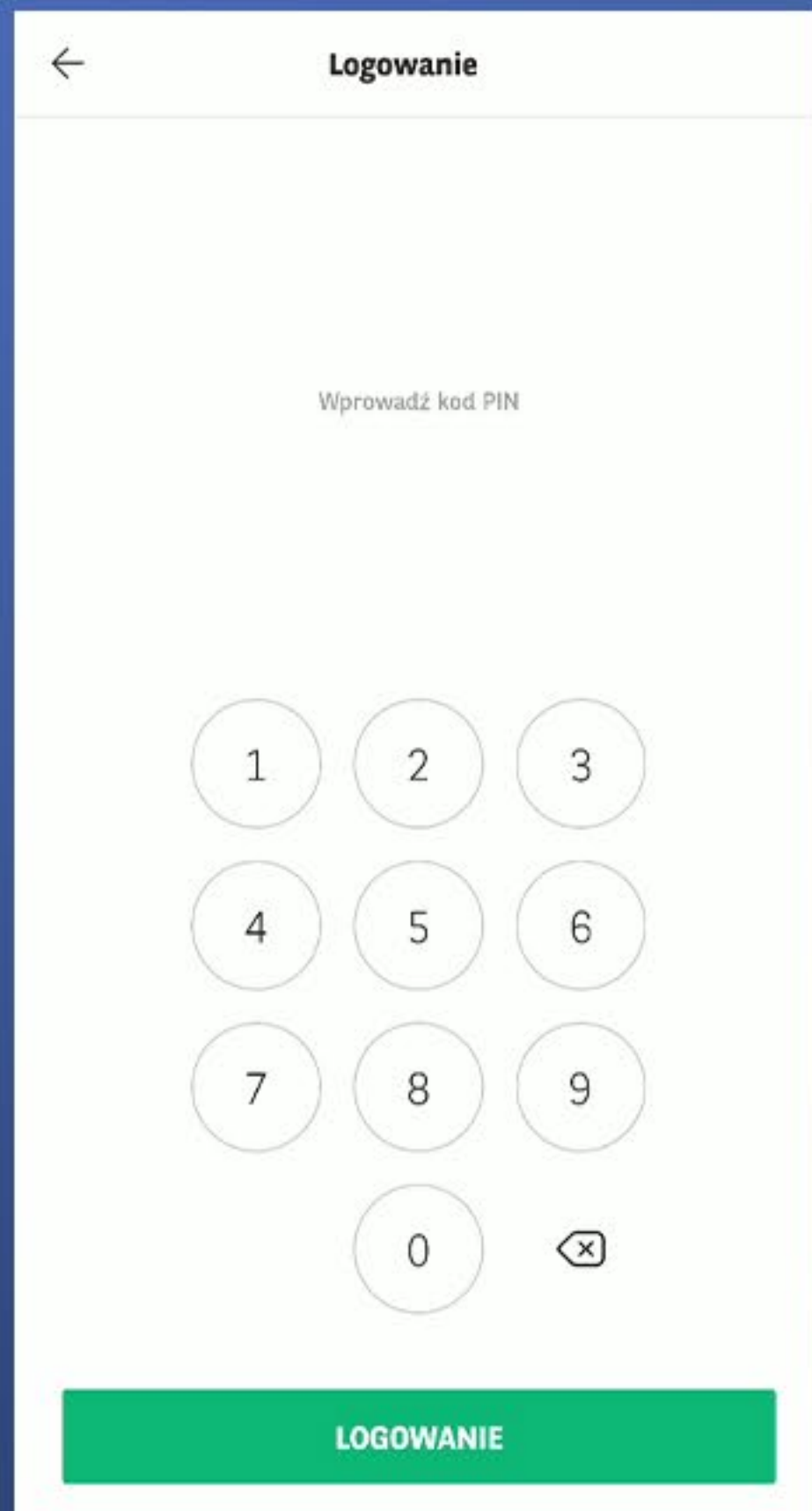
Visual indications of PIN length

Login with a PIN code

This approach, however, has its justification in terms of security. Without limiting the entered characters we theoretically give more possibilities and make it harder to hack. However, this is in our opinion too far-reaching approach.

On the other hand, a mechanism in Alior Bank is a solution worth following. The PIN code there may be of variable length (4-8 digits), but the system presents as many fields for entering the code as the customer's PIN code actually contains.
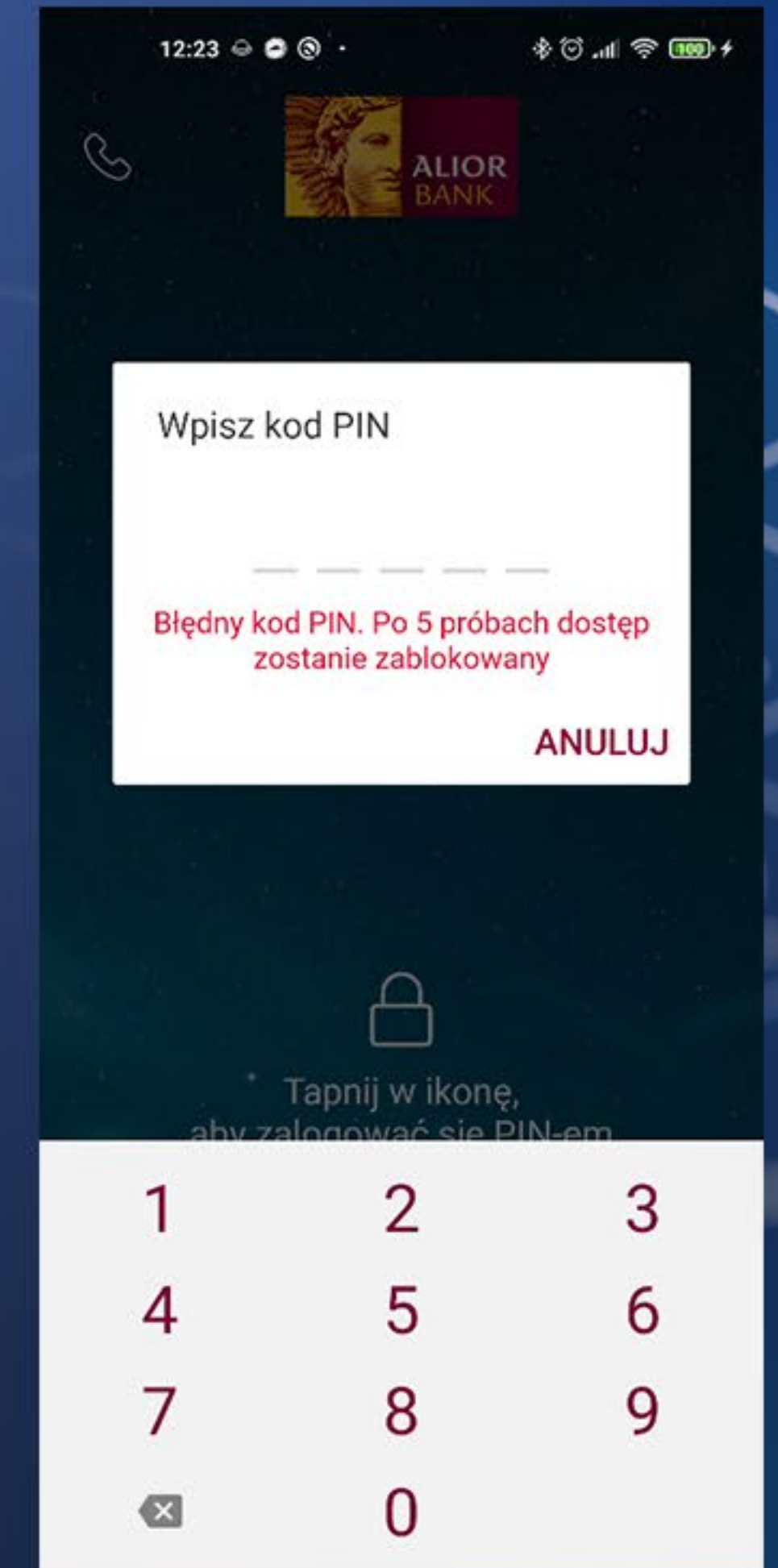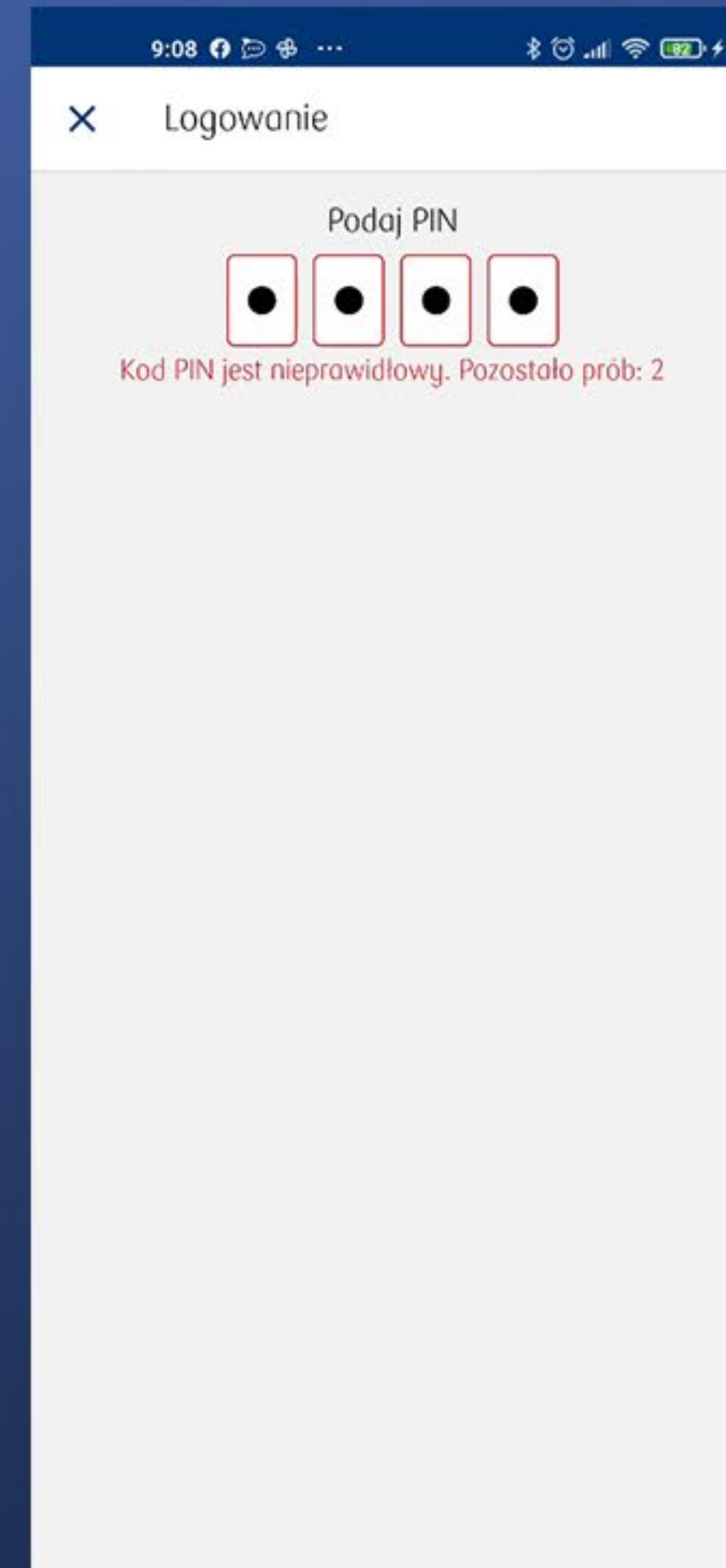

softax
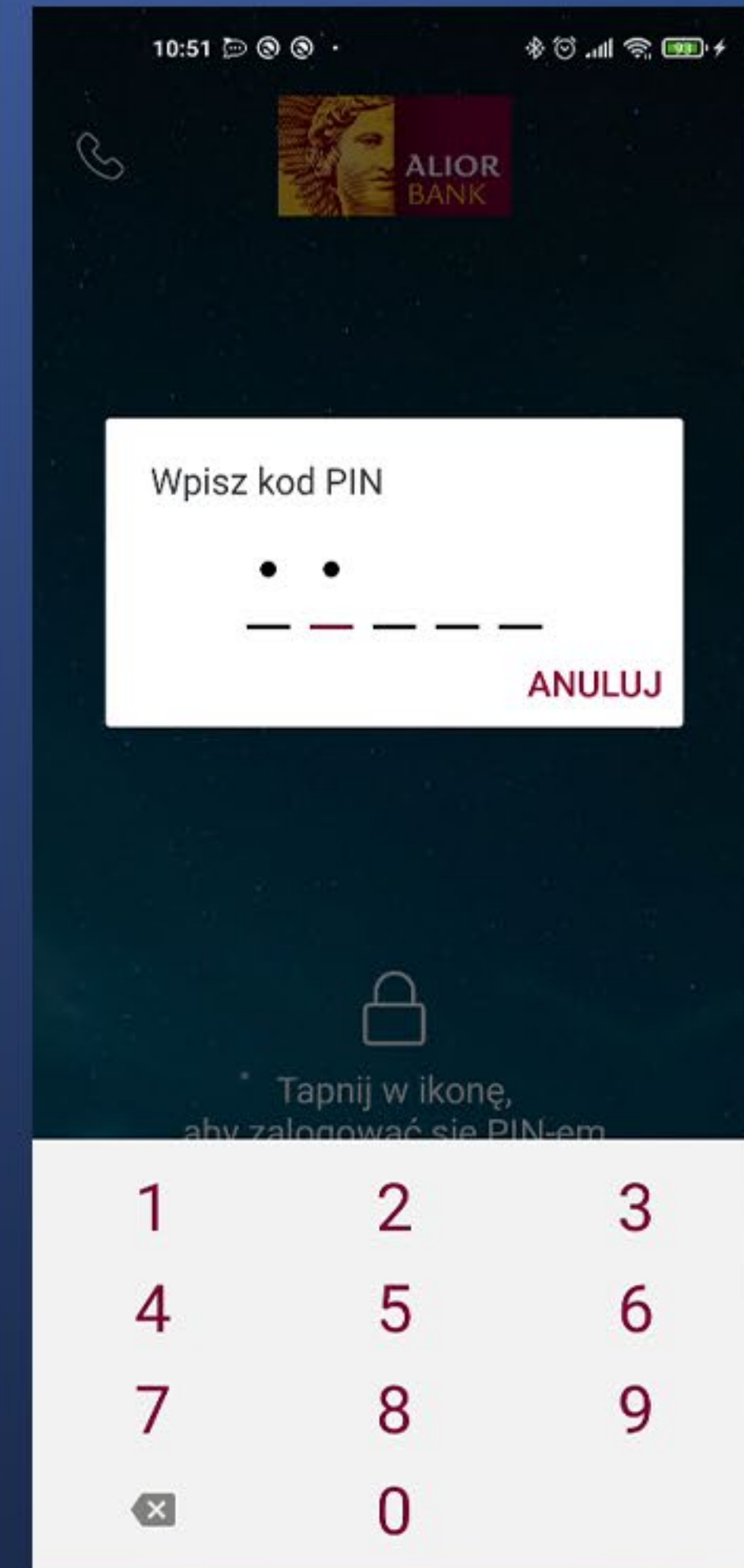
Is there an automatic login after all PIN digits have been entered?

From the perspective of speed and comfort of login, it is most convenient if after entering the required number of characters the PIN verification starts automatically. All banks that use a 4-digit PIN code have automatic log-in after entering that number of characters.
In the case of a PIN code where the customer can choose its length, this is more difficult to implement, but can be done, as the example of the Alior app shows. This is an additional benefit of the fact that the application has information about the length of the PIN code set by the customer.

softax

Information on the number of incorrect attempts to block access

Login with a PIN code

Banks have security policies that result in blocking access if there are too many failed login attempts. Rightly so. However, from the perspective of a customer who cannot recall the PIN code, it is important that the application presents information on how many attempts to block remain.


softax

„I forgot my PIN" instruction

Login with a PIN code

Logging in with a PIN code requires some effort on the part of the customer. Not just entering it, but just having to remember the code. Unfortunately, no matter how hard we try, it can happen that we forget our PIN. Especially if the client usually logs in with biometrics and doesn't use the PIN often. The bank should give support to the customer in such a situation. Unfortunately few banks do this in their applications.

Positive examples include the applications of Millennium, ING Bank (where it redirects to a masked password login) and Bank Pekao (where it triggers a dedicated call to the CallCenter).
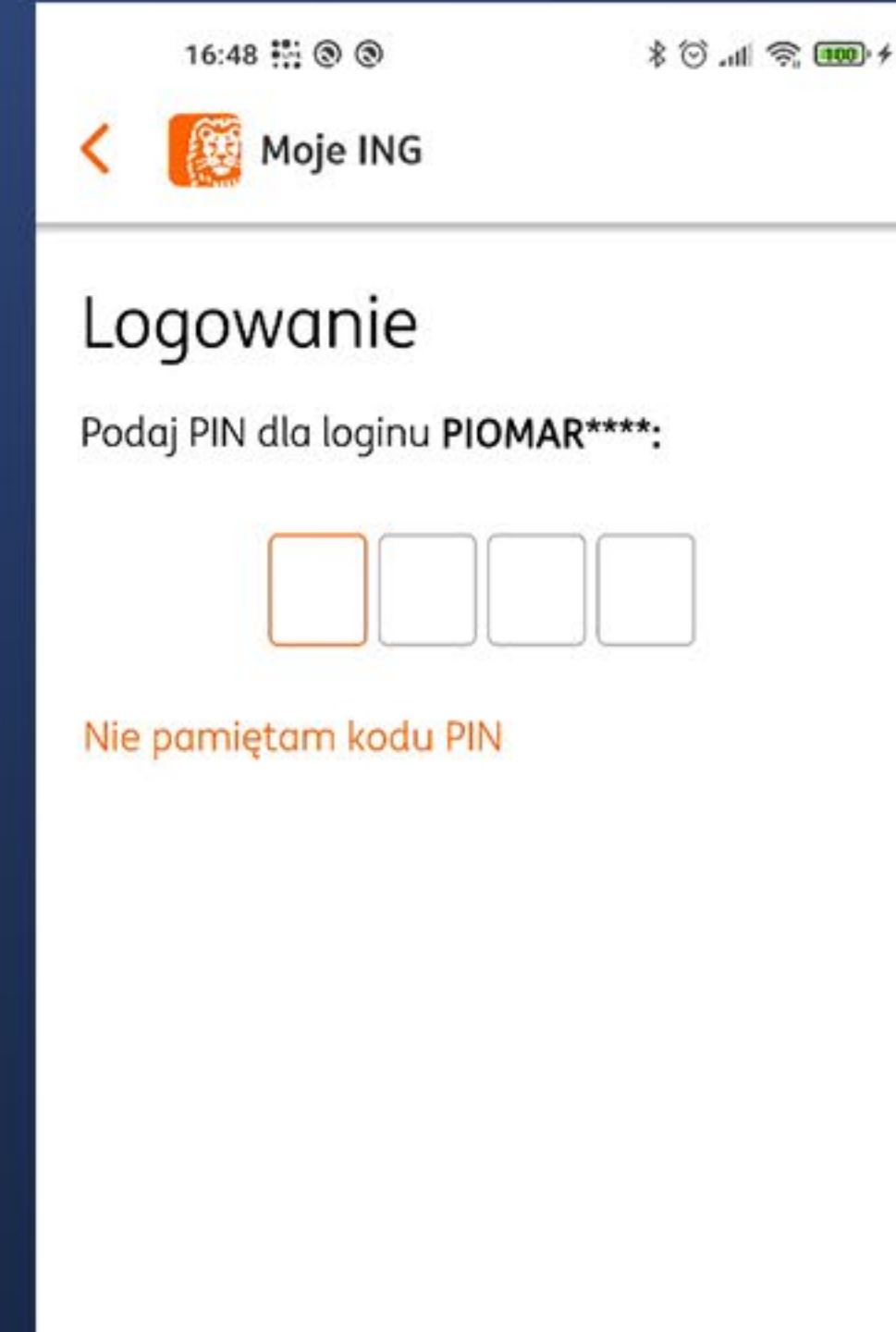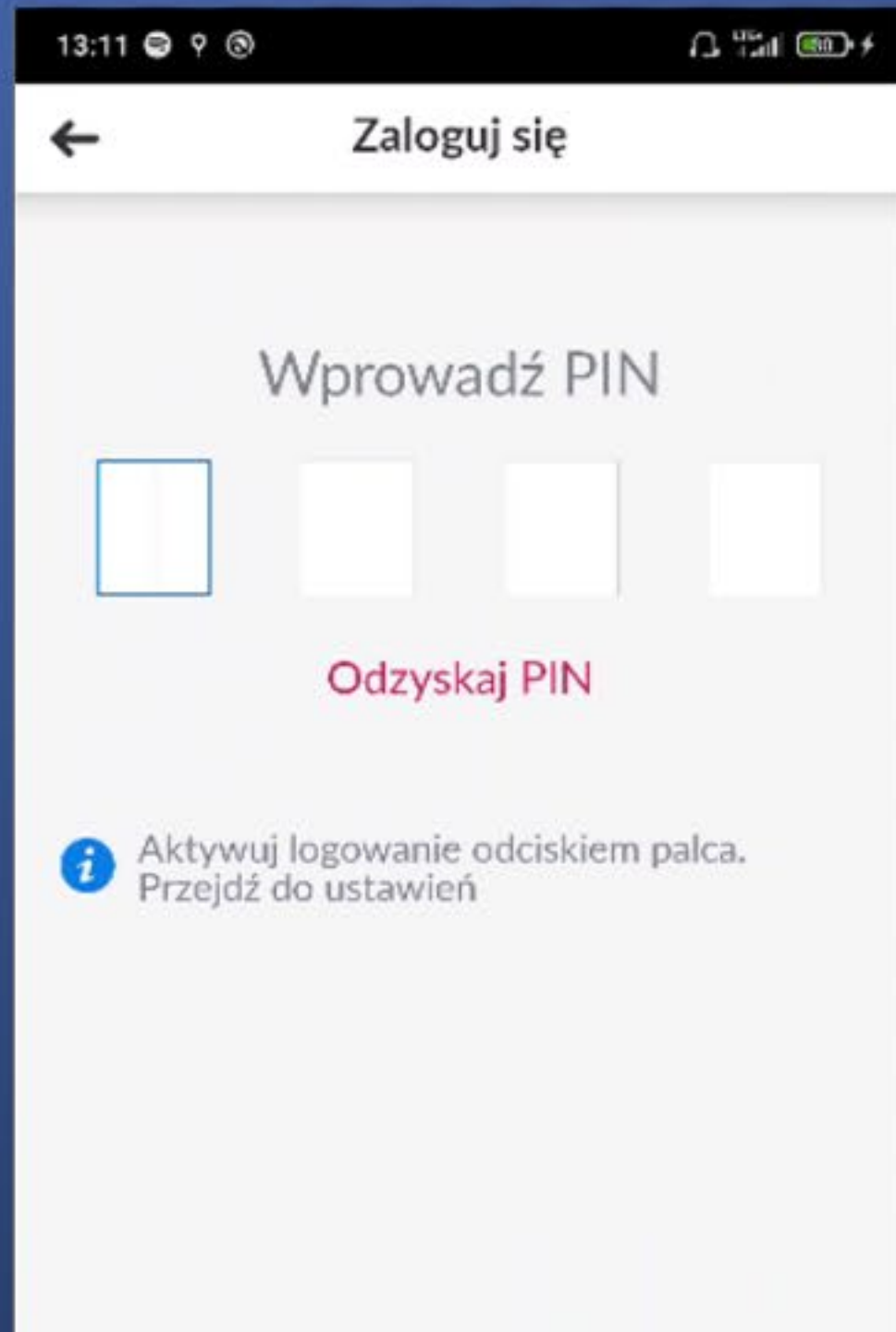
„I forgot my PIN" instruction
Login with a PIN code

Applications that give support, in case we forgot out PIN code

Applications that don't

softax

PIN login with biometrics turned on

Login with a PIN code

When you log in with a PIN, we have a potential few things that can upset your peace of mind.

The first thing is just to have access to pin login when the default biometric login is enabled. Every bank should allow it, and fortunately it does. The customer sometimes does not want or cannot use fingerprint verification and must have simple access to a standard solution – a PIN code. What does it look like in different banks?

In general, when you tap the Login button, a biometrics panel appears when biometrics is enabled. When you tap on the screen outside of it, or on the Cancel/Close button, we usually come to the screen to enter the PIN code. And that's ok. As long as you can see the PIN screen in the background this approach does not seem to cause problems.

This is the case with ING, IKO, mBank and BNP Paribas.

PIN login with biometrics turned on

Login with a PIN code

In the case of Peopay, unfortunately, we do not see a screen to enter the PIN code under the displayed biometric authorization panel. Tapping Cancel actually leads to it, but it's not obvious.

Other positive examples include Millennium and Alior – with biometrics enabled, you can log in with a PIN code with a dedicated named option.

We recommend that you also use this solution on the standard biometrics panel, where the so-called negative button can be labeled „Or log in with a PIN" instead of the typical Close or Cancel.

softax
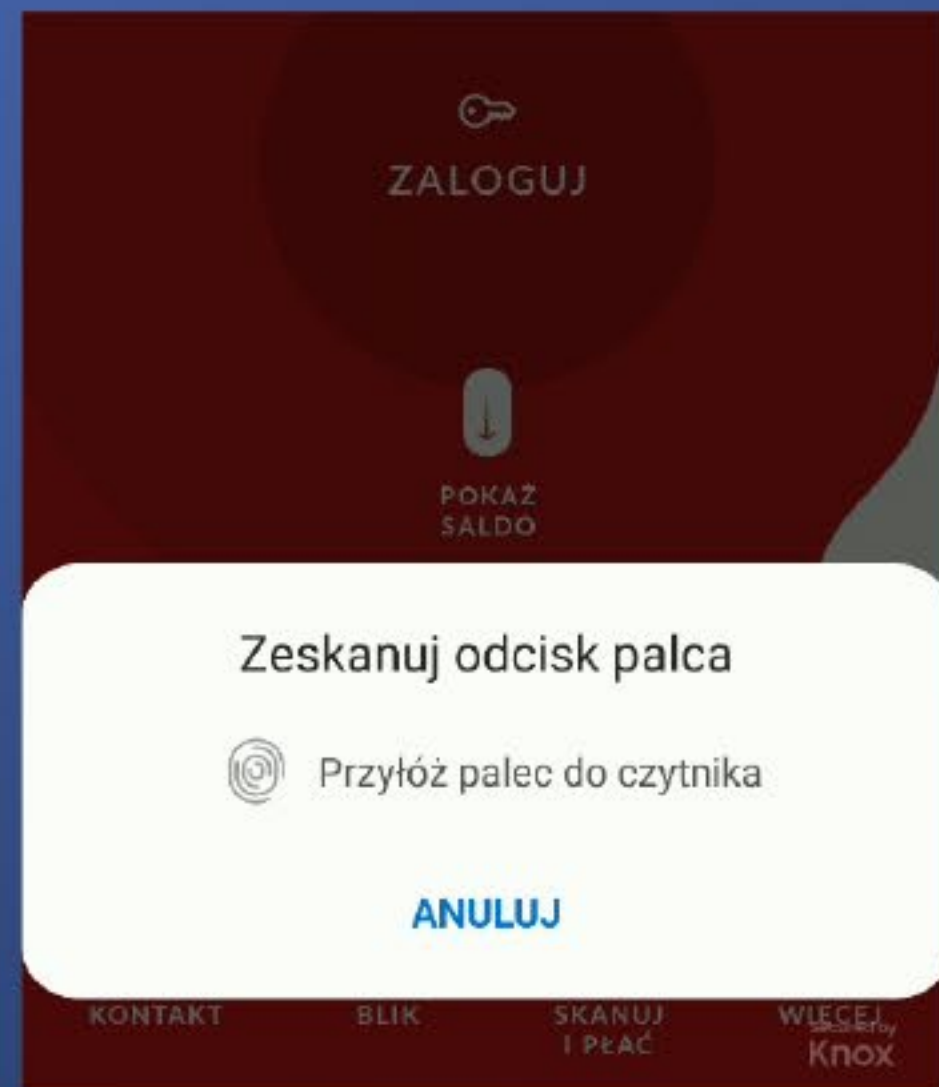
PIN login with biometrics turned on

Login with a PIN code

There is also a certain problem in IKO, when we have additionally enabled start of biometrics login already on the Start screen. Then, to reach the PIN code, you need to cancel the biometric login twice (first at startup and then when you click Login).
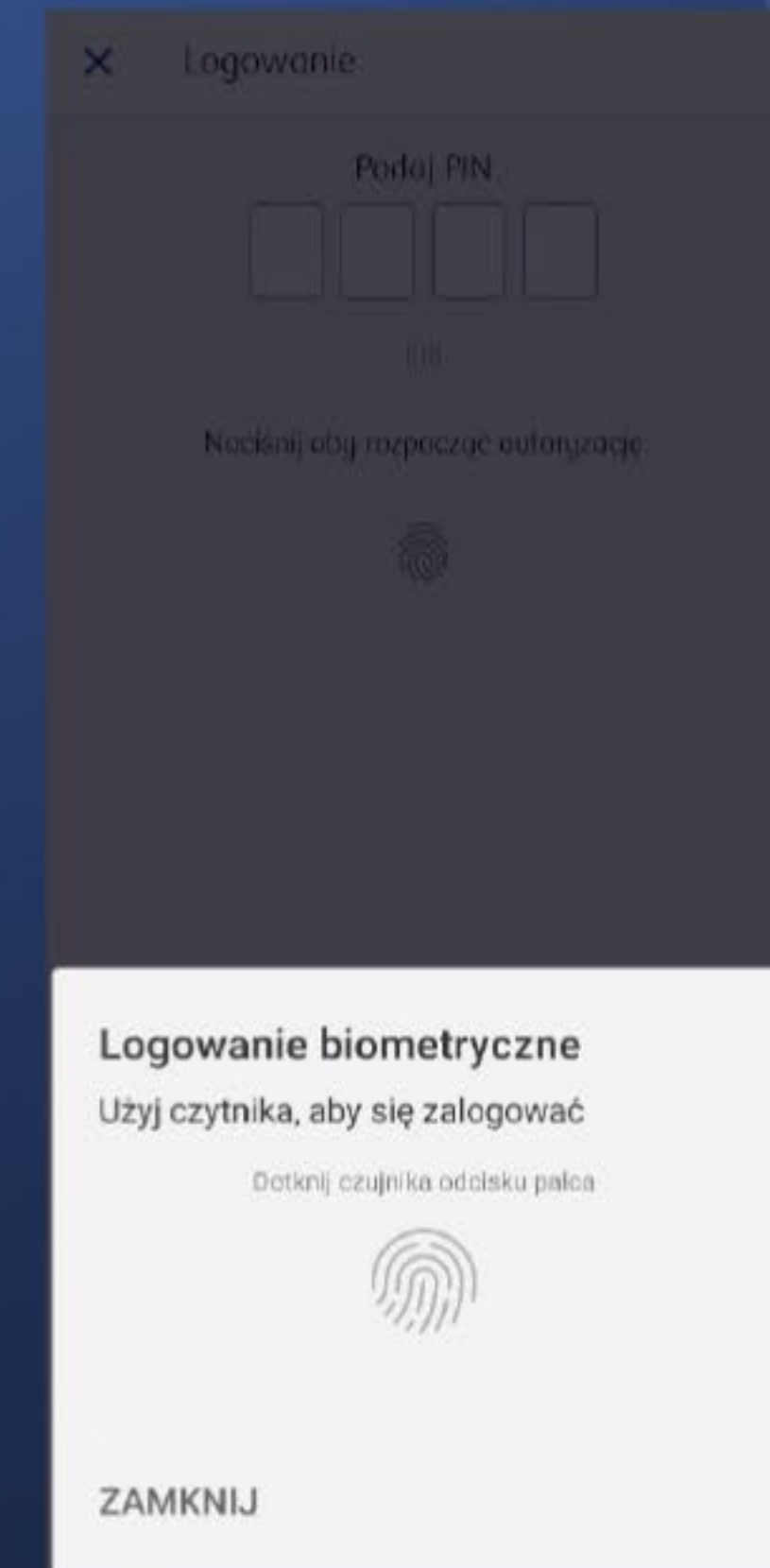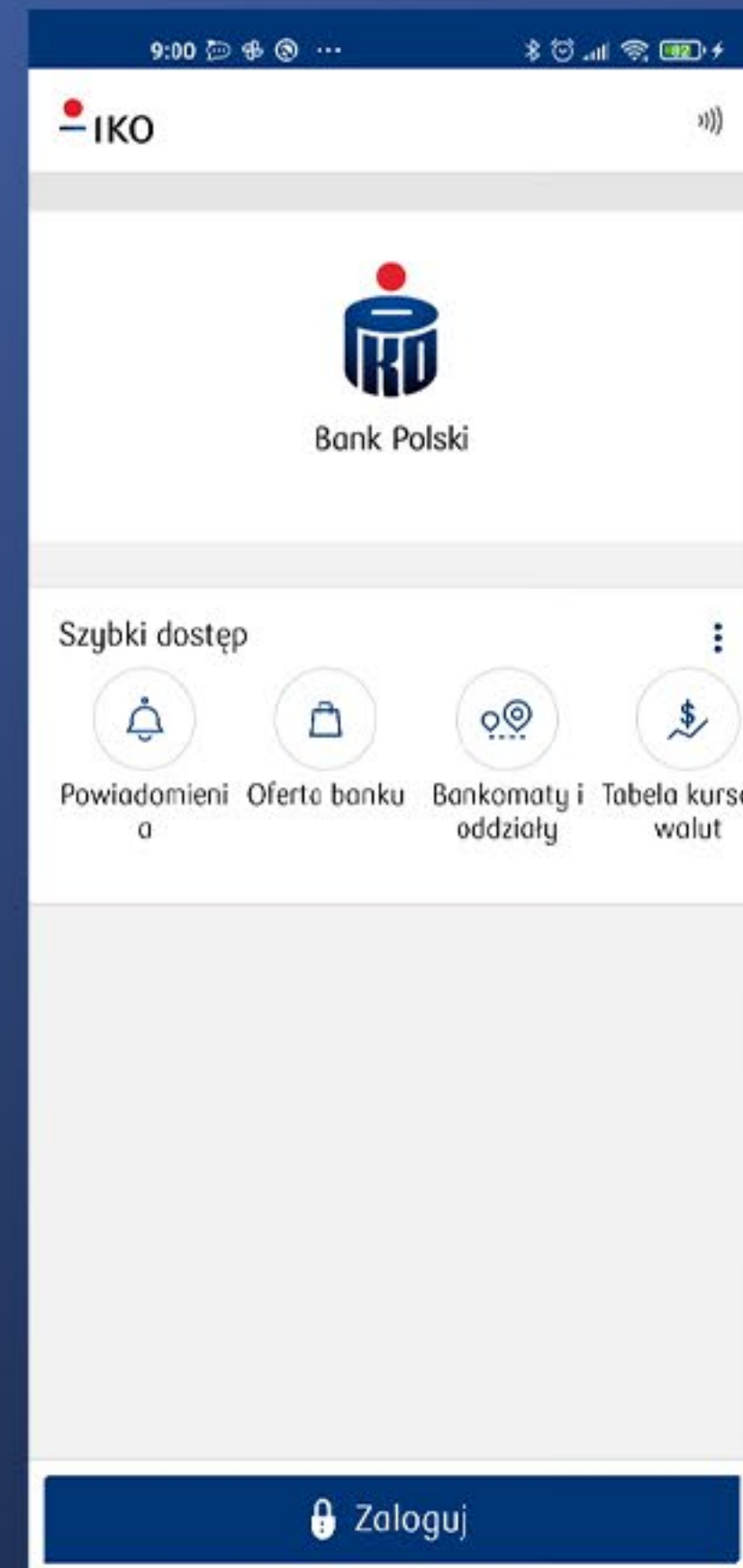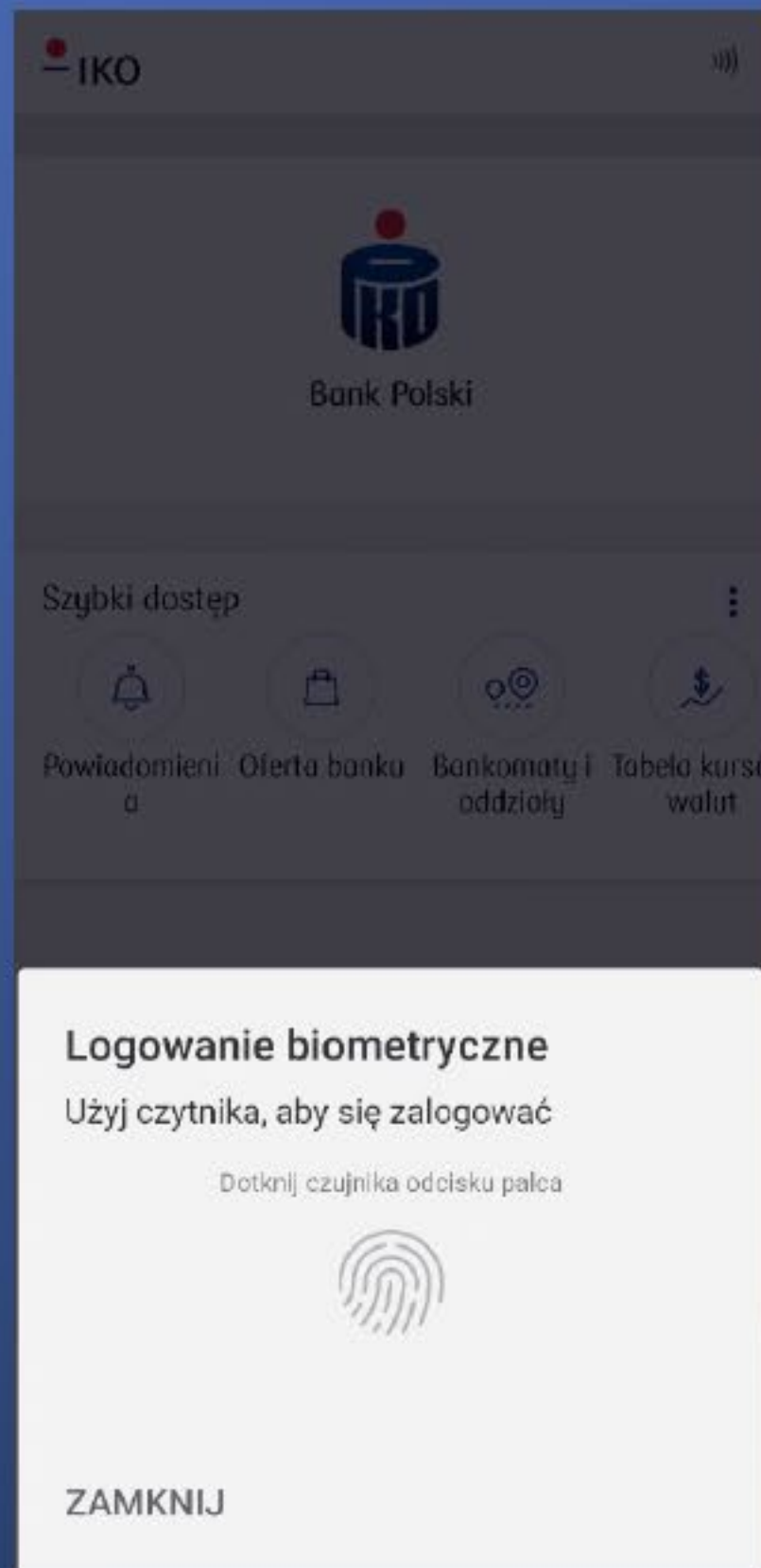
Password login (as an alternative to PIN)

All banks offer the option to log in with a numeric PIN. In addition, some banks – Pekao SA (Peopay) and Santander offer the ability to set the login with a masked password. ING Bank offers this kind of logging in as a backup mode (in case the customer forgets their PIN code). Such mechanism, however, is, in our opinion, doomed to be a niche.

Customers expect convenience first of all – signing in with a masked password is difficult (especially on the phone), even if it makes it hard to intercept the data they type. However, it may be acceptable as an option for certain groups of clients or as a backup mode.

softax

Login with biometrics

All analyzed applications allow you to log in with biometrics. From a customer's perspective, biometrics login, obviously increases the convenience and speed of the login process.

Security issues are a bit complicated here. Biometrics logon prevents you from remotely intercepting your PIN or password, so you can say that on the one hand it increases security. On the other hand, however, it exposes to the threat of unauthorized access in the event of unawareness of the phone holder and the use of such a state by unauthorized persons (examples are provided by the media: the daughter unlocked the phone of the sleeping mother using her fingerprint or students during parties gaining access to a drunk friend's phone).

It is therefore recommended to monitor, using an anti-fraud system, the situation of access to customer data and orders executed from the application depending on the method of logging in (PIN code or biometrics).

softax

Access to biometrics configuration in settings

Login with biometrics

We've looked at how difficult it is to find a place in Settings to turn on biometrics. In most applications, it's easy, at the main settings level, or in a section that seems to clearly determine where to look for the right option. We had some trouble in the ING app, where two sections were matching: „Security" and „Mobile App". Despite the fact that the sections have their description biometric login was not listed in any of them, so guesswork was needed (in this case, the latter option was appropriate).

In our opinion, banking applications (already on the start page or login page) should encourage you to enable biometrics by providing the appropriate information and redirecting you immediately to the relevant section in Settings. Alior Bank offers a redirect to change your login method (that's a good thing, but it lacks specific information about enabling biometrics login), while Millennium Bank proposes activating your login with your fingerprint in the settings, but without going straight to the right place in the app.
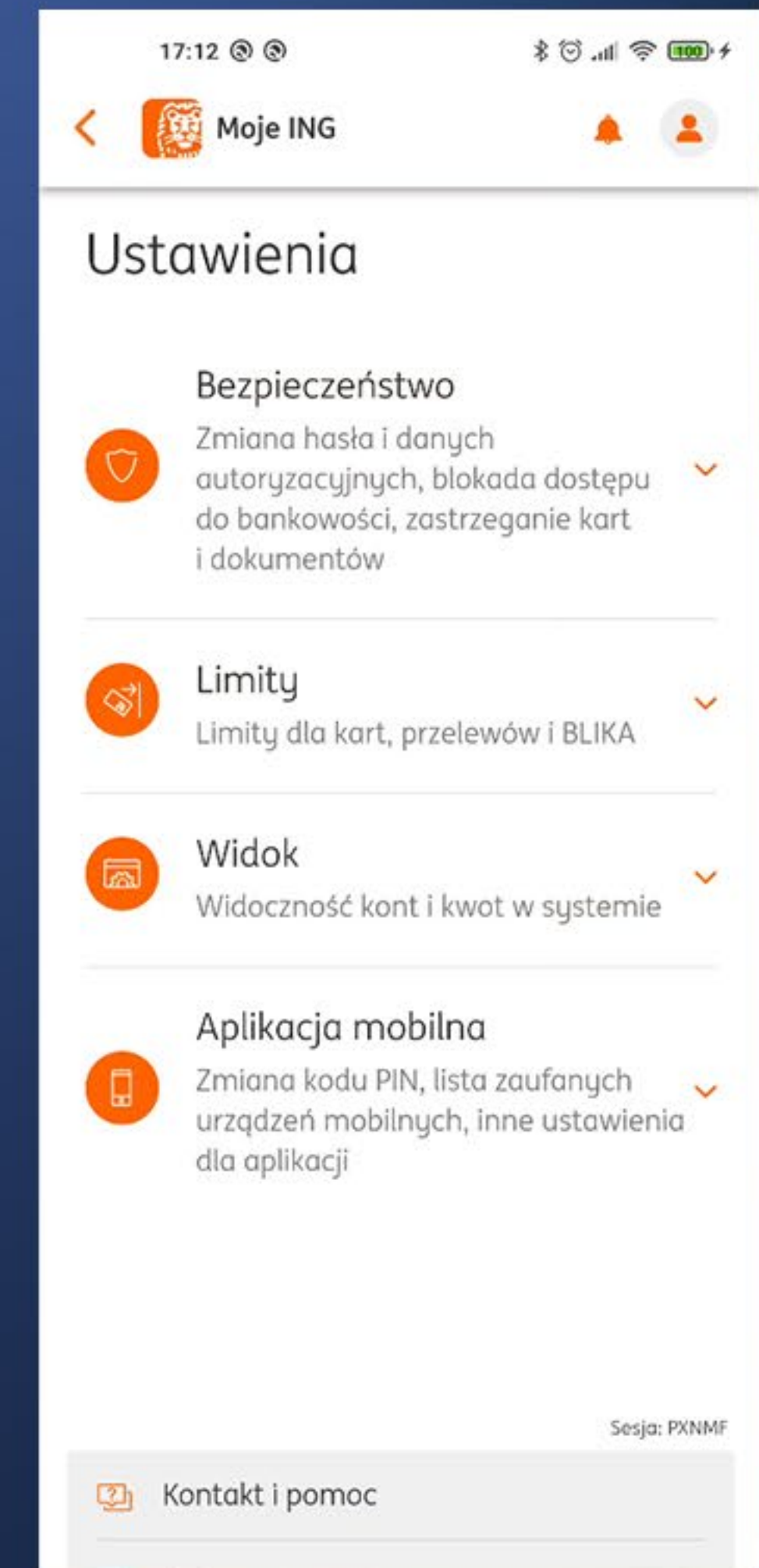
How to confirm biometrics activation

Login with biometrics

It is difficult to objectively assess what level of authorization is necessary to enable biometrics logins. The surveyed banks use different approaches, which is all too surprising in such a situation. In our opinion, enabling a new login mechanism should be authorized with the customer's current authorization tool (in our case a PIN code).

soft ax

Biometrics activation

Login with biometrics

Applications that require
a pin code and fingerprint

Applications that require
only a pin code

Applications that don't require
additional authorization

softax

How to confirm biometrics disablement

Login with biometrics

Banks also differ in their approach to disabling biometrics login. In our opinion, it is not necessary to make a specific confirmation here because it is not the customer's disposition to extend the logon capablility (as in the case of switching it on) but to limit it. PIN login is possible in every application also with the biometrics login available. It is particularly puzzling that in the case of the Peopay app, both a PIN and a fingerprint are required.

softax

Biometrics disablement

Login with biometrics

Applications that don't
require additional authorization

Applications that require
only a pin code

Applications that require
a pin code and fingerprint

softax

Is it possible to log in with biometrics as soon as the application started

Login with biometrics

If we turn on the application to perform an action that requires you to log in, then we want to go through this login as soon as possible. Therefore, a very good option is the ability to enable biometrics login right away on the application's start page.

softax

Is it possible to log in with biometrics as soon as the application started

Login with biometrics

Applications allowing biometrics to be enabled on the start screen

Applications that don't offer such an option

softax

Range of supported biometrics

The standard type of biometrics for Android is fingerprint. Readers are placed on the front (bottom), back or side of the device, as well as on the screen. Other biometric authorization mechanisms are less common, but they do exist. However, it is important that they have a sufficiently high level of security. Simple facial recognition with a regular camera is not considered such. A scan of the iris of the eye as well as spatial facial (3D) verification can be considered sufficiently safe.
However, very few phones have such mechanisms in the Android environment.

The support of banking applications for Android for other types of biometrics than fingerprint is not good. According to official declarations, only the mBank application allows using, apart from fingerprint, also iris verification and 3D face scan.

However, our tests show that also IKO (PKOBP), Peopay (Pekao SA) and ING Bank applications allow the use of these types of biometrics on the phone (but without dedicated information texts). This is made possible by the use of standard Android APIs (where different types of biometrics are used in the same way since version 9.0) and the lack of control over the actual type of biometrics used.

Support for 3d face scan and iris verification in Android app

Login with biometrics

Officially supported

mBank

No official support but working

ING | **Bank Polski** | **Bank Pekao**

Not available

**ALIOR BANK** | **BNP PARIBAS** | **Santander**

Millennium bank

soft**ax**

Biometric login visualization

The customer should not have to wonder. Biometrics login (using a fingerprint) seems very simple and convenient. Unfortunately, also there problems appeared in the applications. Most likely related to the type of Android API used and the actual adaptation of the interface.

According to the recommendations since Android 9.0 a dedicated system biometric login panel should be used (which may look slightly different depending on the phone manufacturer). Using proprietary solutions in this regard can cause problems, especially on new phones with a fingerprint reader built into the screen.

The correct and recommended way of visualization is used by: IKO, mBank, ING, PeoPay (how it should look like is shown by the example of IKO (PKOBP).

softax
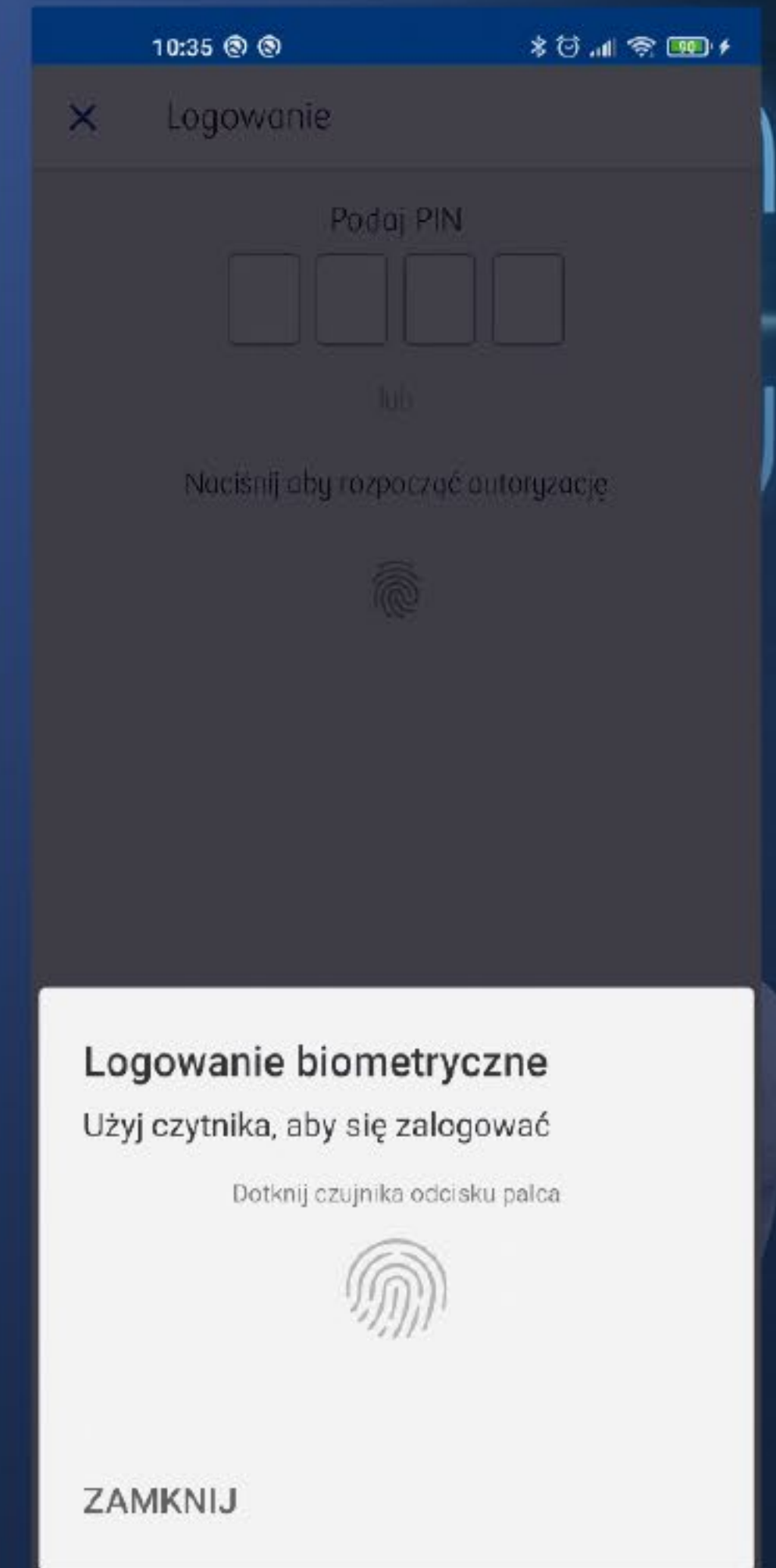
Biometric login visualization

Login with biometrics

The Santander app has even two problems. The first is that it starts fingerprint verification prematurely – as soon as the app is turned on, without waiting for the finger to touch the sensor. This obviously fails and greets us with a red cross at the start.

The second issue with readers in the screen, when the reader is active an icon appears, where to put the finger. Unfortunately, it covers other visual elements on the screen and introduces confusion. Admittedly it works, but it just shatters the peace of mind in using the app.

softax

Biometric login visualization
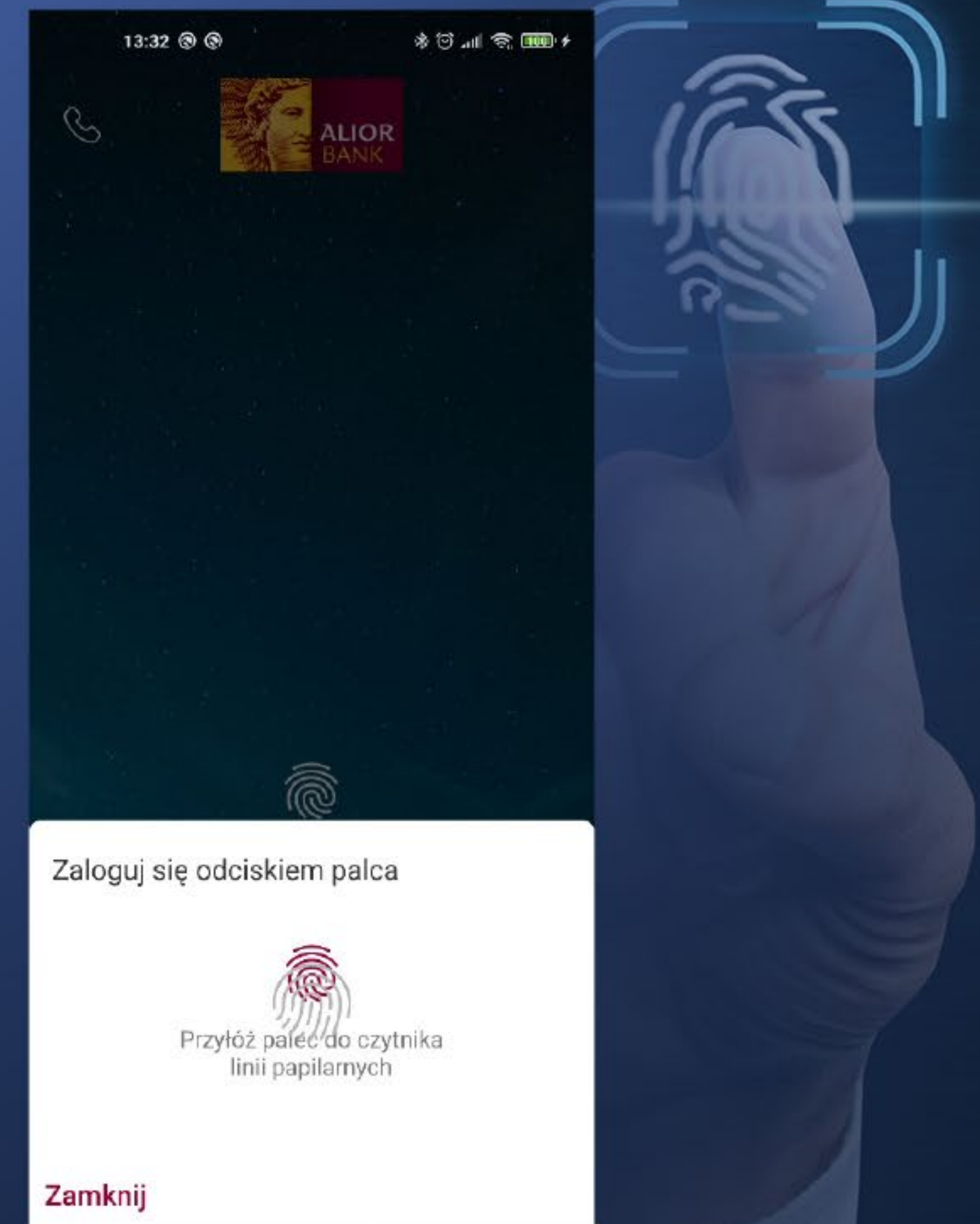
Login with biometrics

In the Millennium bank app, we have the option to log in right away on the start or dedicated screen. For phones with a fingerprint reader in the screen, the visualization of the reader overlaps on-screen elements, and this introduces uneasiness. The customer is not sure that they are doing everything as they should.

softax
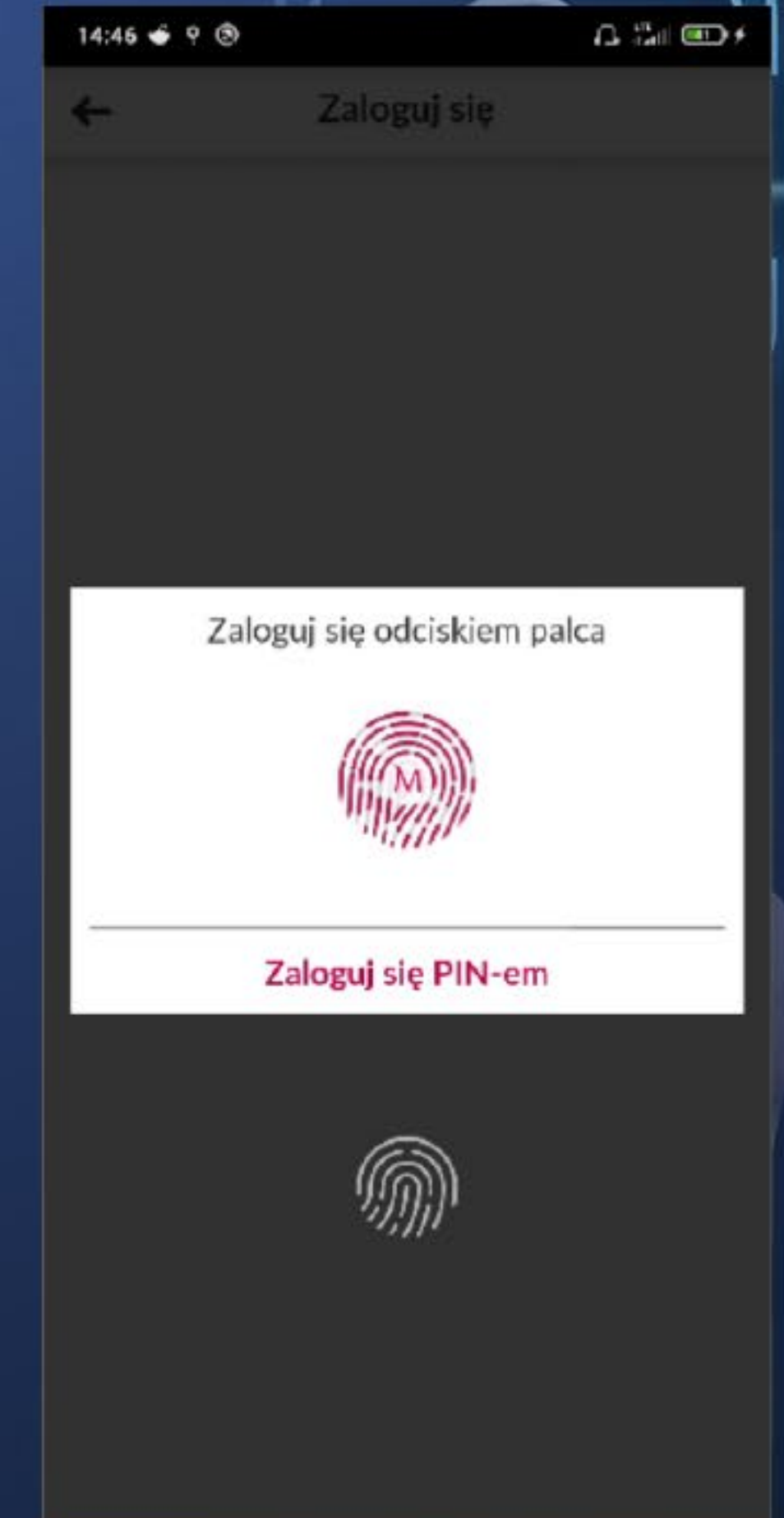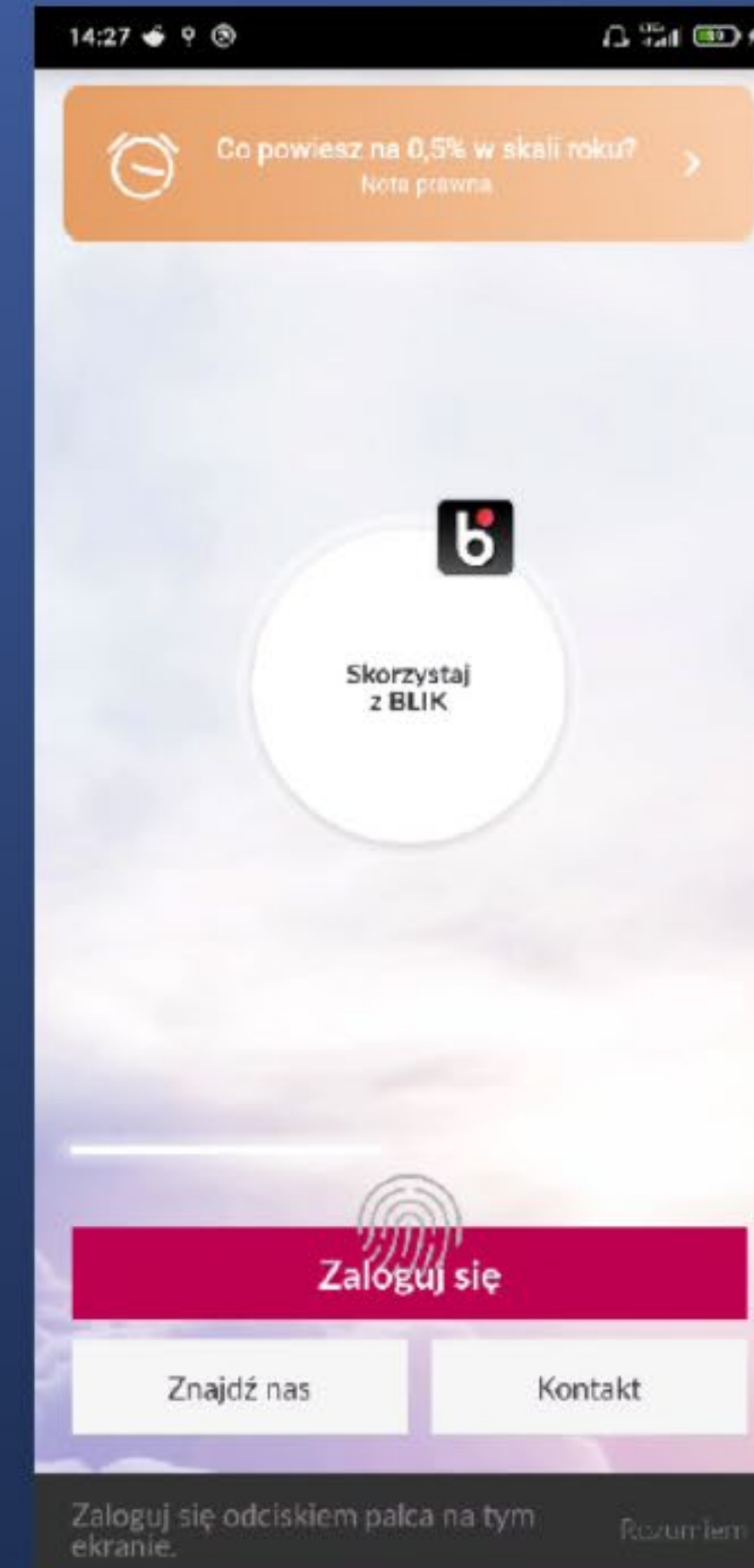
Biometric login visualization

Login with biometrics

The Alior Bank app has only minor problems on this comparison
- the icons partially overlap. But in total we have three fingerprint
icons (one in the background). This is also not the best solution.

softax

Biometric login visualization
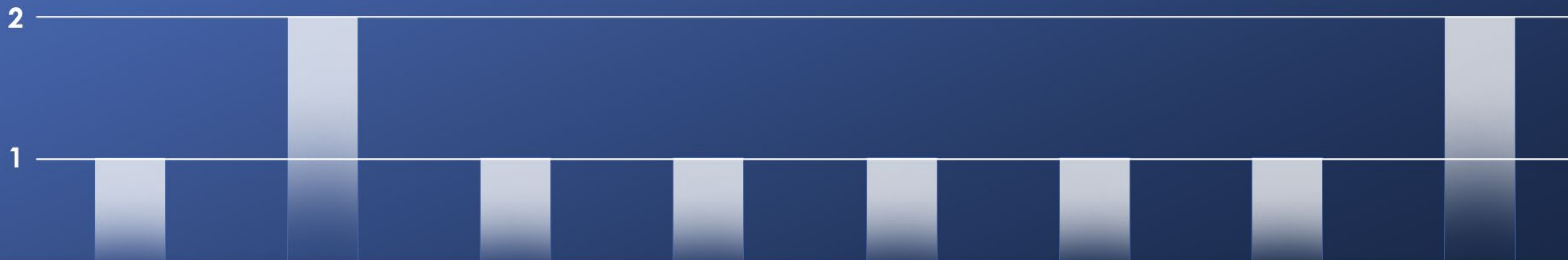
Login with biometrics

In a specific situation, also the IKO app (PKO BP) has problems - not in a simple scenario, but when switching between PIN and biometrics login. But still. This shows how important it is to test this functionality on different types of devices and in different scenarios.

softax

Login speed and convenience - Number of taps

Moving to PIN login with biometrics enabled

When it comes to login time, it's hard to tell about the important differences. All applications tested could be considered fast in operation. The whole login process, of course, when it required more taps was obviously a bit longer, but it was still very short.

softax

Login summary

All institutions studied give you the opportunity to log in with both PIN code and biometrics. The PIN code is still indispensable, even with biometrics enabled, you may sometimes need to log in with a PIN (e.g. when you change/add a fingerprint on your phone). Also in some situations, customers may not be able to use biometrics (e.g. gloves are worn). Therefore, it is important that the process of logging in with a PIN code is as simple as possible.

Therefore, we recommend a visualization that makes it easier to assess the number of characters to be entered in the code, and we encourage presenting the customer the number of digits they need to enter. With this approach, it is also possible to automatically start logging in once all the digits from the code have been entered.

Applications should also provide dedicated information in case of customer problems, if they make a mistake in the PIN code or cannot remember the password.

From a security perspective, we also recommend using a specialized keyboard (instead of the system keyboard) for entering such sensitive data as the customer's PIN code.

Biometric logging is available in all banks, but not everywhere is it possible to enable biometric logging right from the start screen. We encourage you to make this option available to your customers.
The choice of available login method (PIN or biometrics) should always be clear and easily accessible.

softax

Account information before login

soft ax
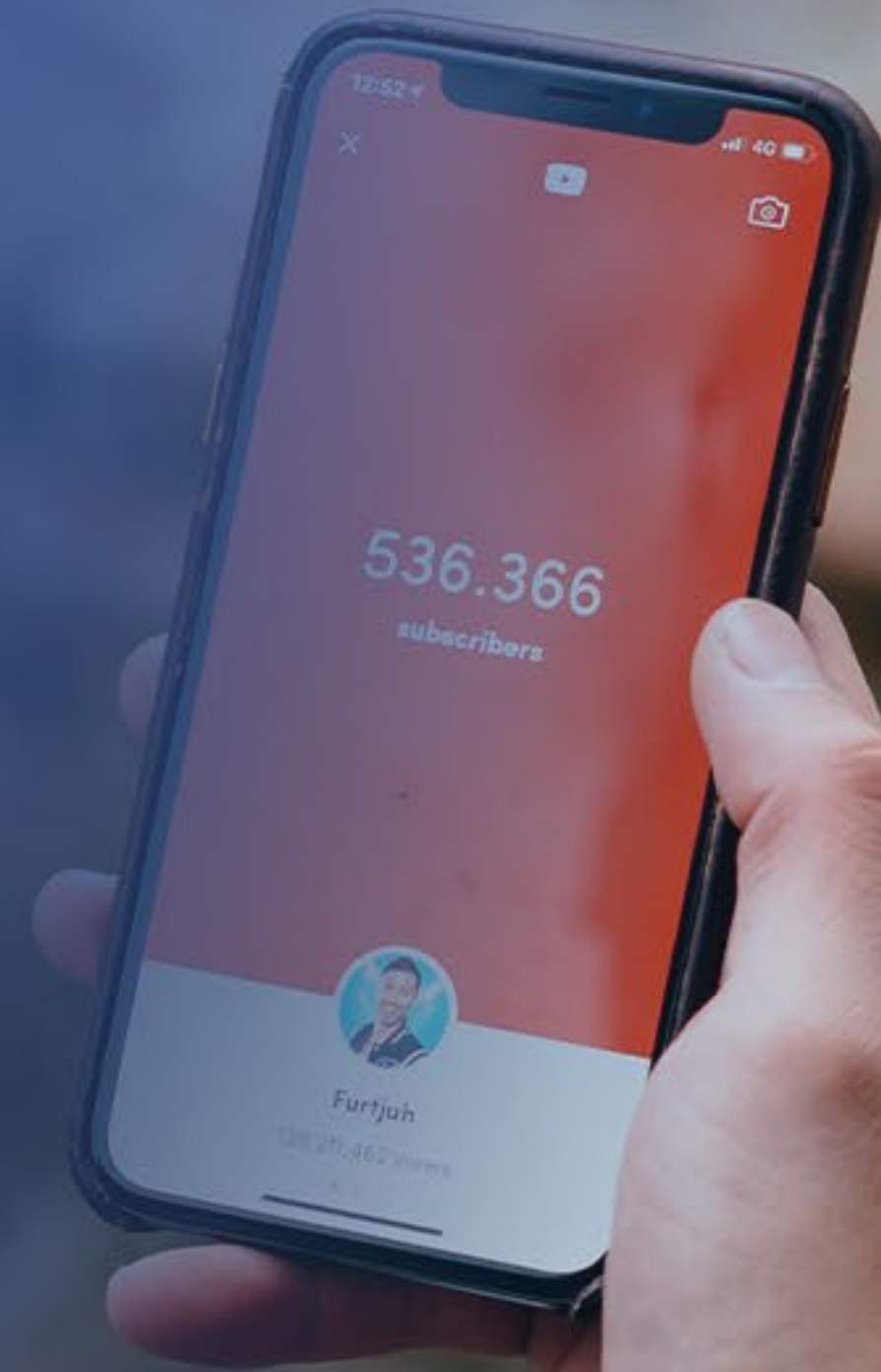
Access to account information

Information before logging in

The second part of our current analysis addresses issues related to the presentation of customer account balance data without logging in. All the institutions surveyed gave this option in their applications. And while biometric login is very fast some customers may prefer to access the most basic information without having to go through the login process.

softax

# Information about the possibility of adding the presentation of the account balance on the start screen

Information before logging in

In order to enable the presentation of the account balance you first need to know about such a possibility. Unfortunately, only mBank and Peopay (Pekao SA) offer the right tips on the start screen, and in Peopay app you can immediately go to the appropriate section in the settings. Santander gives the right hint, but you have to initially expand the relevant panel, which is not obvious.

soft ax

Access account status presentation configuration in settings

Information before logging in

Let's assume that we know about the possibility
to configure the presentation of the account balance before
logging in. And we looking for such an option in the settings.
It turns out that in the case of the ING Bank application we will
not find such an option. Setting the account balance
presentation is available only from the settings of the
corresponding widget available on the start page.
This approach limits discoverability. We recommend to include
such options also in the general settings. Right, you can access
this option from the start screen, it is convenient, but it should
not be the only option, but a supplement to the standard place
in the application settings (such approach is used by PeoPay,
Santander and Millennium).

softax
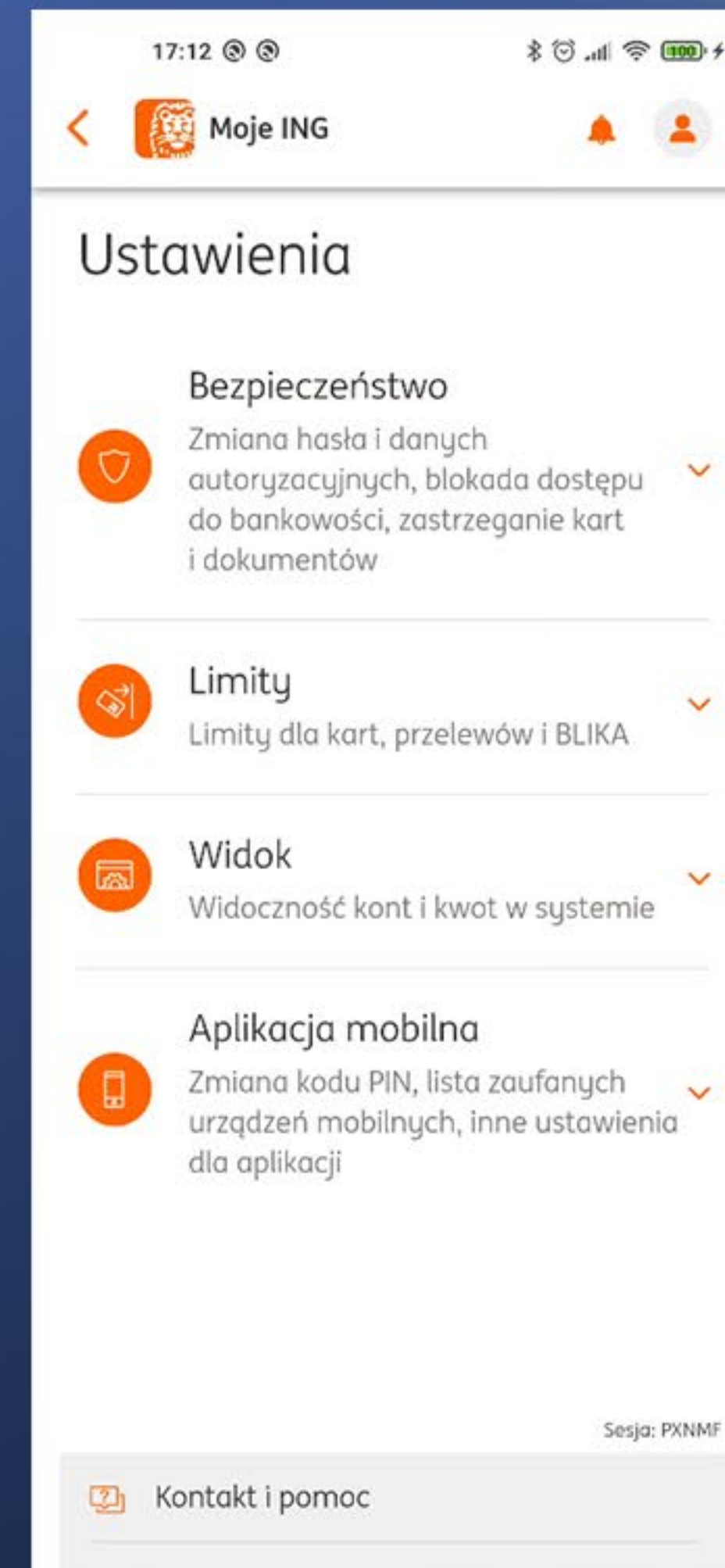
Preview the presentation of your account balance on the settings screen

Information before logging in

All banks offer to present your account balance before logging in.
And in two forms – as a specific amount and in a percentage variant, where the user determines the value of 100%. The latter approach allows you to hide the actual figure of your account balance from outside parties, but it remains understandable to the person enabling this setting. Customers can choose which approach suits them more, and in the case of BNP Paribas, they can also choose to present both options at the same time.

Presentation of the balance before logon

Information before logging in

Differences arise in the approach to what amount and how many accounts can be viewed. Some of the application offers a preview of several accounts (ING Bank, Santander, Millennium), the remaining only one selected account. In addition, some applications offer a preview of the credit card balance (mBank, ING Bank).
The most extensive approach here is probably ING Bank.

softax

How does the percentage limit work (can it be more than 100%)?

As mentioned, the balance can be shown as a percentage with the 100% value set by the client. It turns out, however, that there is a big discrepancy between applications here. Some banks assume that the presented account balance of 100% cannot be exceeded (i.e. the maximum account balance presented is 100%).
The second part allows you to exceed 100%, that is, for example, for the account balance 1400 ZŁ, and the limit of 100% set to 100 PLN the value of 1400% will be presented. In this case, we get more information, but we also uncover more sensitive data.

Of course, it is the client himself who enables such functionality in the settings, but there is no choice of which option he wants to use. The situation is aggravated by the fact that some banks do not give any indication of which of these approaches will be applied. It is usually necessary for the client to experiment.

Our recommendation in connection with the above – introduction of a clear information on the settings screen about the adopted strategy regarding the interpretation of the value of 100%.

soft ax

How does the percentage limit work (can it be more than 100%)?

Information before logging in

Applications that are not presenting more that 100% as an account balance

Applications that do not apply

softax

Presentation of last transactions before logging in

Information before logging in

Apart from the account balance itself, some banks also allow presenting the last transactions before logging in. The best solution in this scope is offered by Alior Bank application, where it is possible (configurable independently of the account balance) to enable presentation of the last three transactions, for which the most important data are available: transaction date, counterparty (or operation type) and amount.

softax
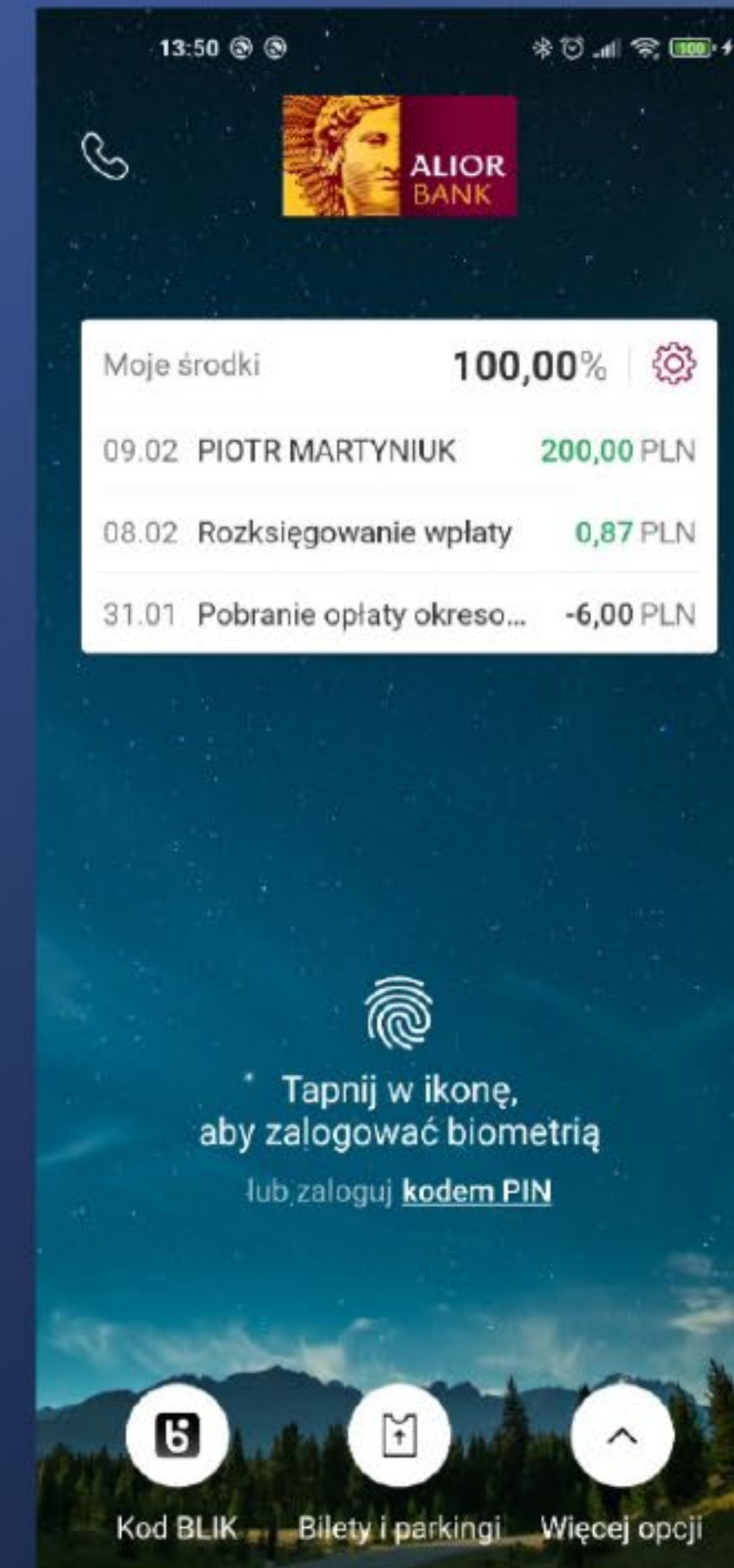
Presentation of last transactions before logging in

Information before logging in

Santander Bank offers a presentation of the data of the last transaction. This functionality is enabled with the presentation of the balance and cannot be configured separately. Also, when it comes to the presented data is not ideal – only the transaction title and amount is presented, there is no transaction date and counterparty.

Other applications do not provide the ability to preview recent transactions. Is such functionality needed? It is difficult to answer unequivocally. In the era of widespread biometric logon, on the one hand it is easy to log in and see the full history. On the other hand, this option is included in the client and may be very convenient for some users.

Do I need this functionality? It is difficult to answer unequivocally. In the age of universal biometrics login, on the one hand, it's easy to log in and see the full history. On the other hand it is an option enabled by the client and may be very convenient for some users.
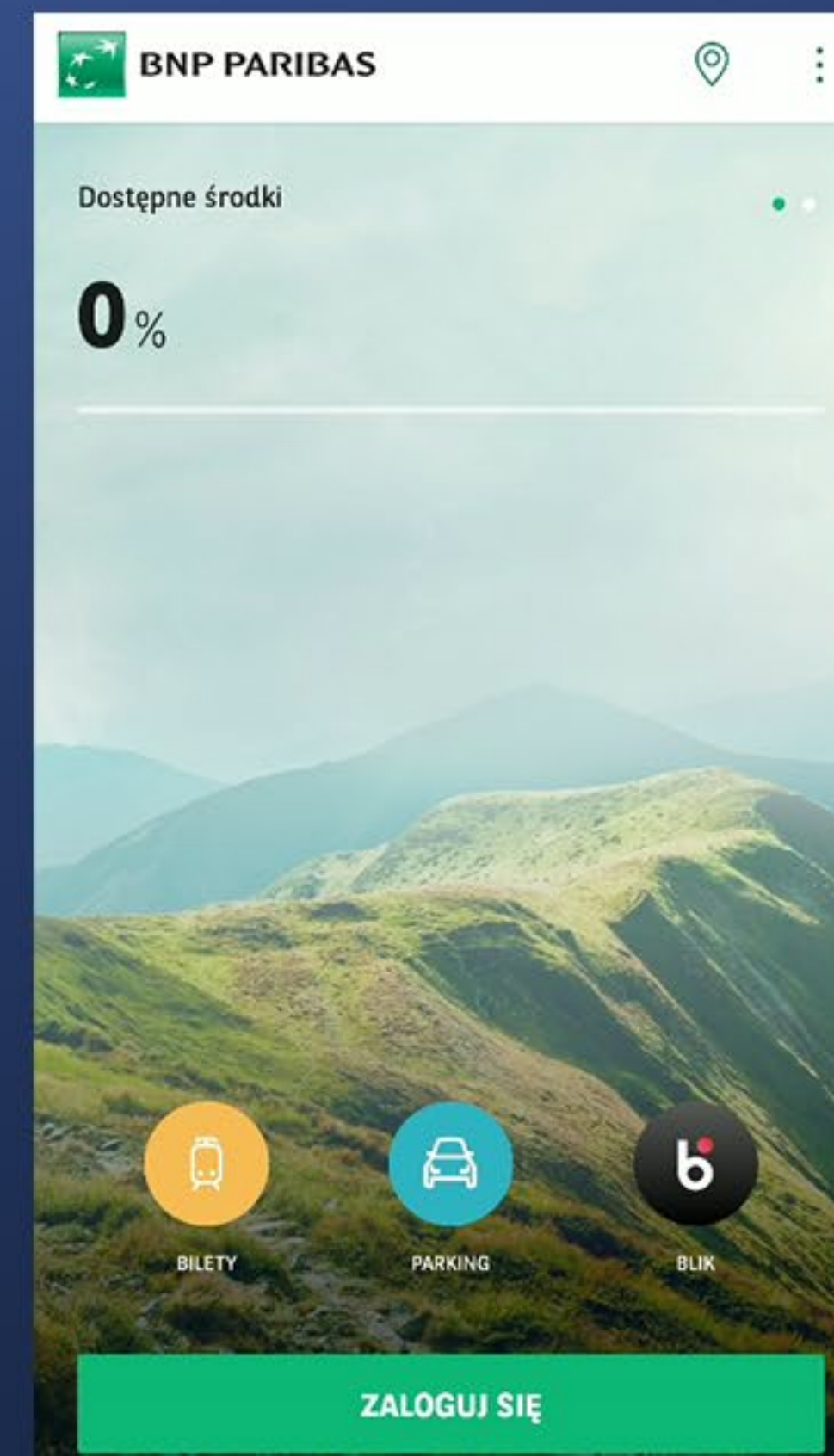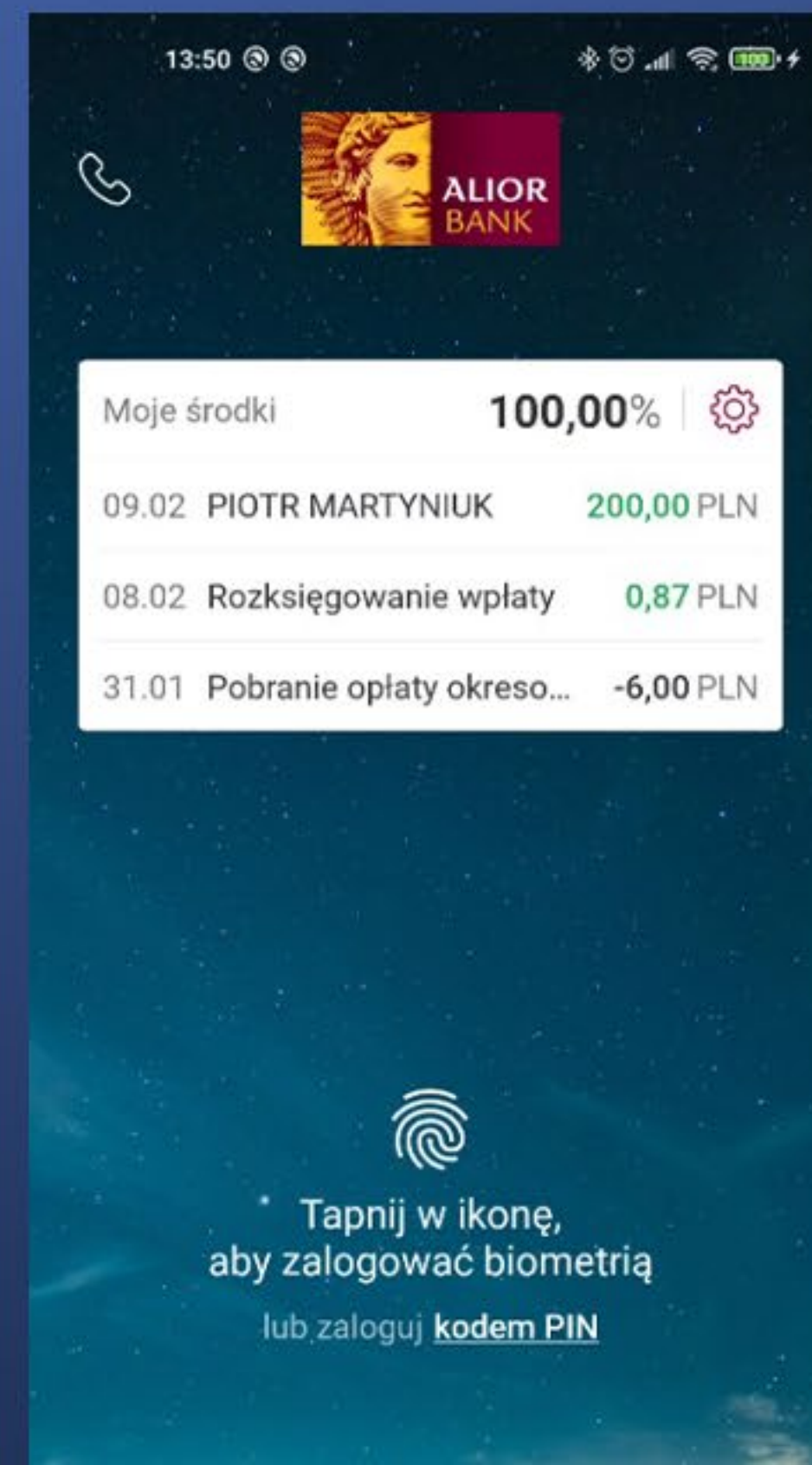
Account balance presentation on the startup screen

Information before logging in

After enabling the presentation of the account balance it's not everywhere that you see it on the start screen. Banks differ strongly in their approach here. Some of them present the preview right away, others require the client's action - tap or expand an appropriate option to see such preview.
The easiest way to see the account balance is to use applications of ING Bank, Alior Bank and BNP Paribas, which present the account balance right away on the start screen.


softax

Account balance presentation on the startup screen
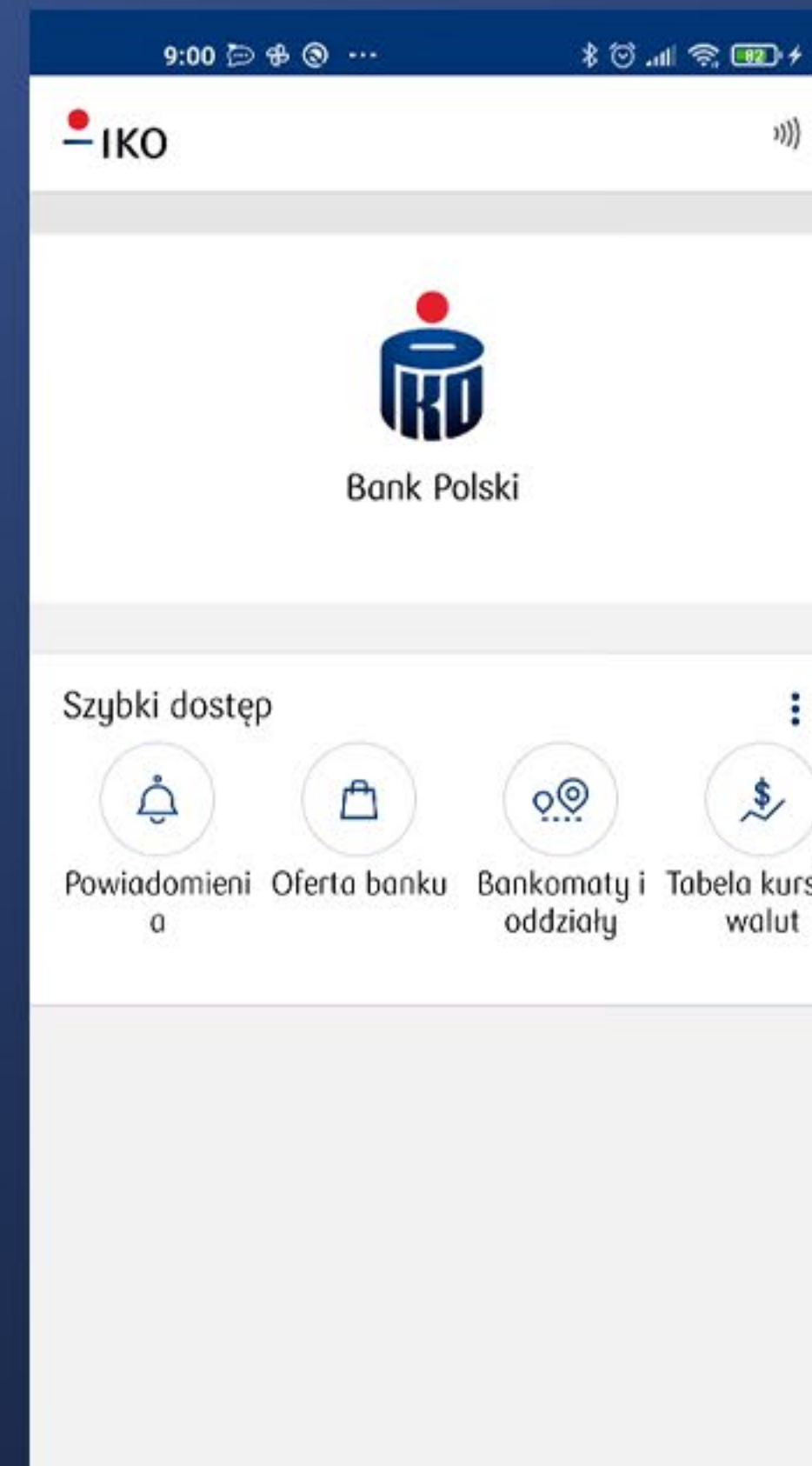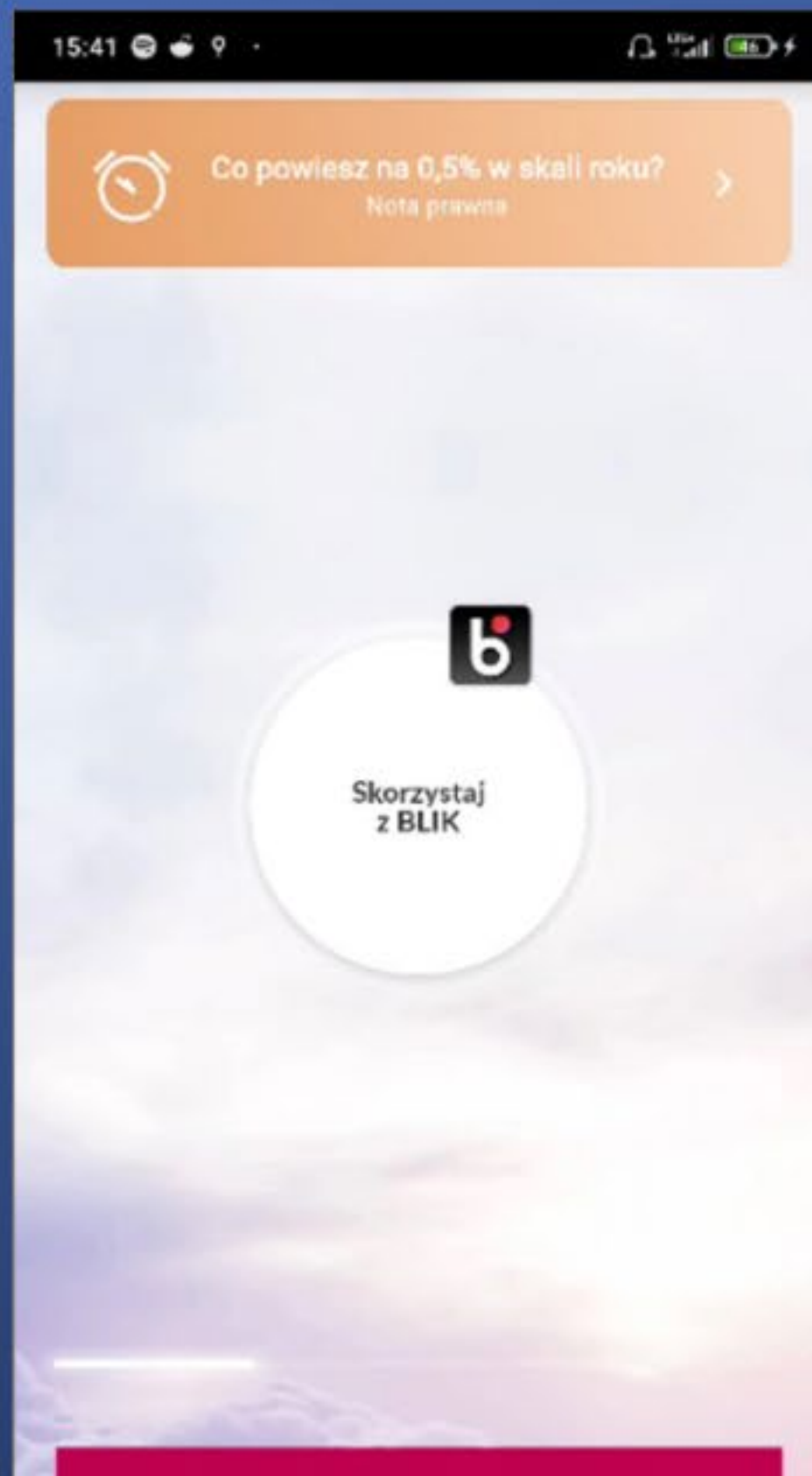
Information before logging in

For mBank application, there is a certain stumble. This application presents a preview of your account balance right away, but it also has a generally useful ability to automatically start biometric login right on the start screen. Unfortunately, it completely covers the view of your account balance.

For other applications, the preview is available after the corresponding action. For Peopay, this option is very visible (Show balance).

softax
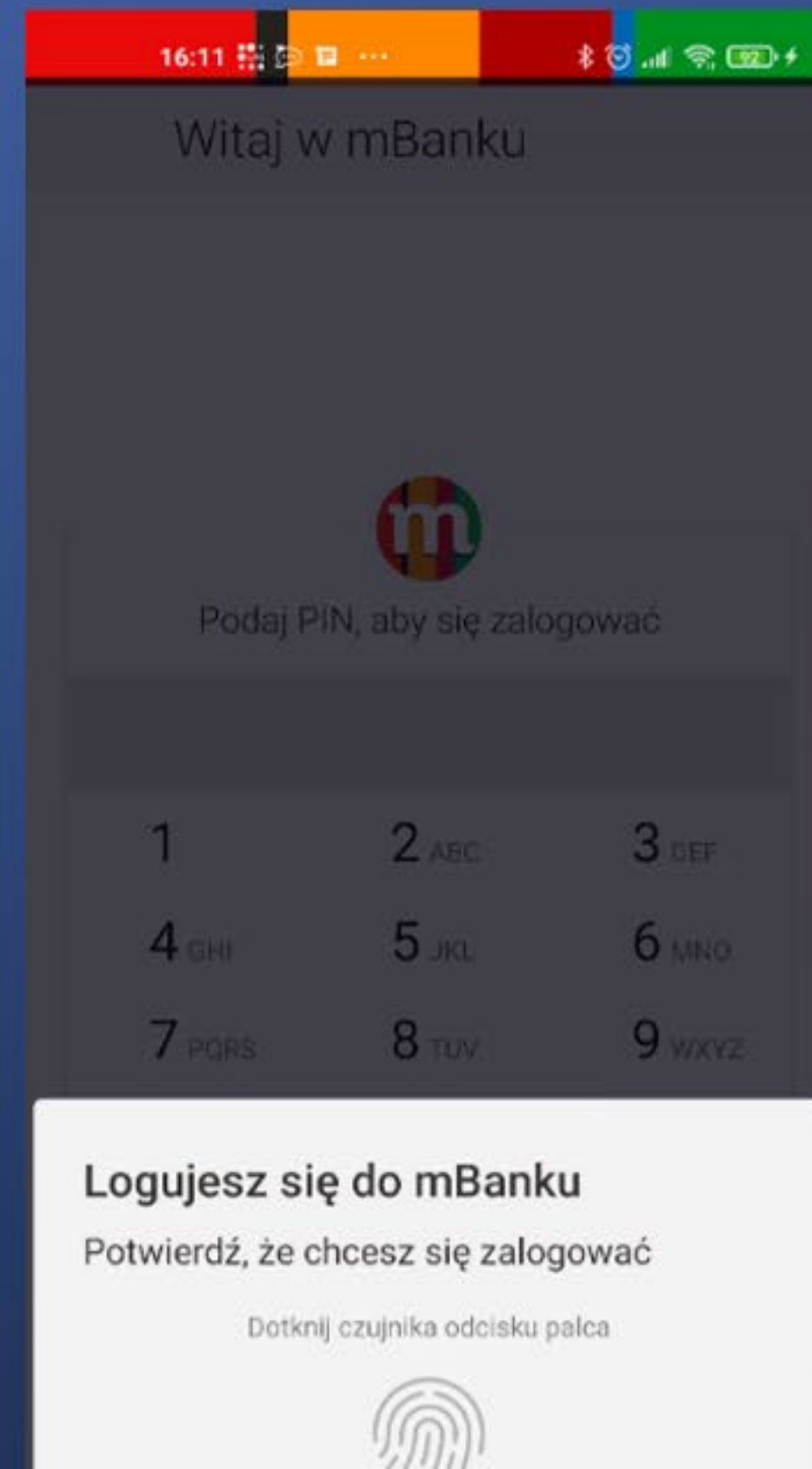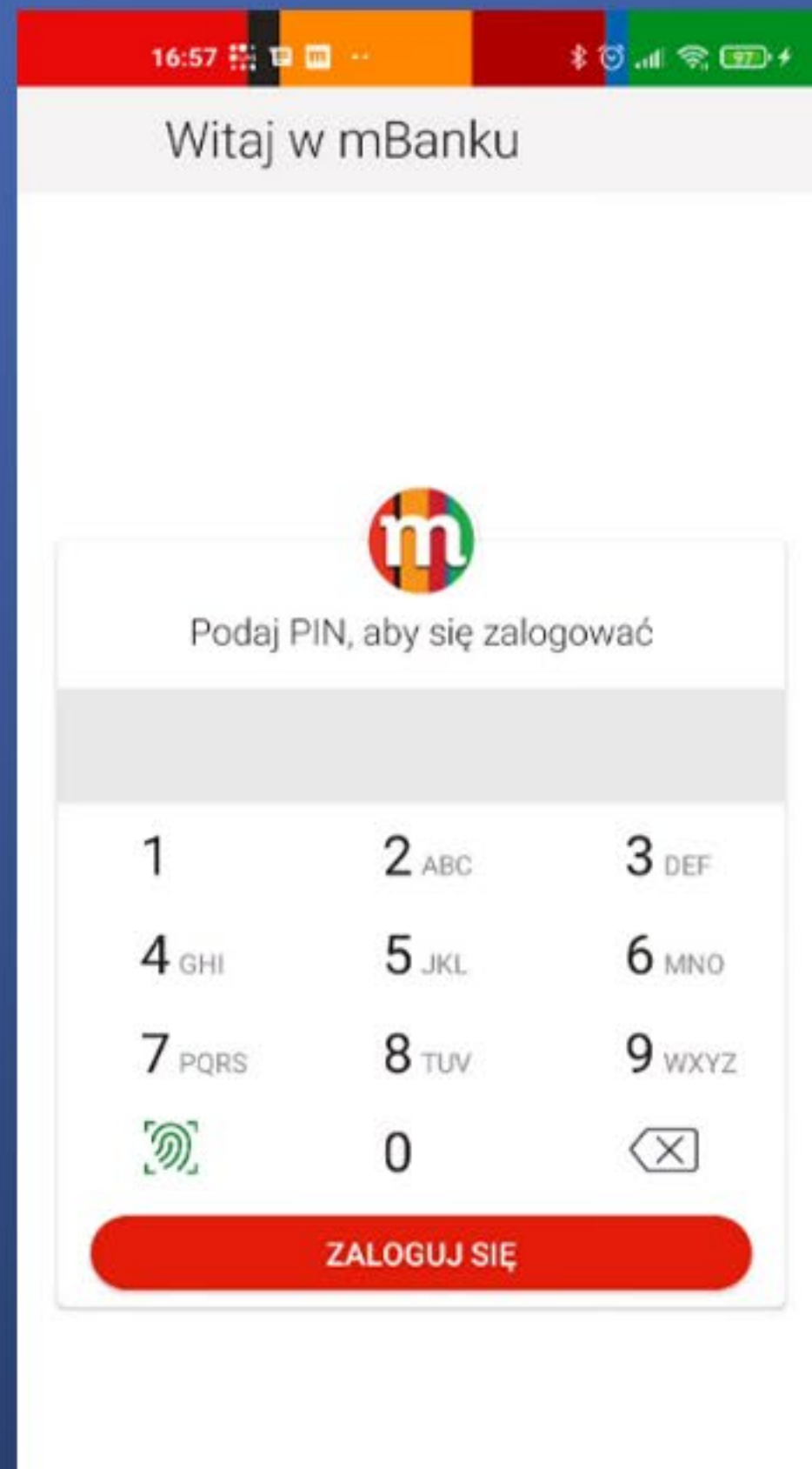
Account balance presentation on the startup screen

For the others, there are only very discreet and not entirely intuitive directions (a small expand stamp at the top for Santander or a poorly highlighted scroll bar above the Login button for Millennium). In the case of IKO (PKO BP), a top-down gesture is required, but there is no visual indication on the start screen.

Account balance presentation on the startup screen

Information before logging in

Applications that provide a balance view directly on the start screen

Applications that require interaction to preview account balance

soft ax

Account balance presentation on the startup screen

Information before logging in

In our opinion, the balance preview - enabled in the application settings by the customer - should be visible immediately on the start screen without the need for dedicated gestures or other interactions. The purpose of presenting the balance before logging in is to make it easier to access this data, and if it is similarly difficult as logging in itself (in the case of biometrics, it may be only 1 touch) then this purpose is not realized.

softax

Account info before login summary

With biometrics, log in becomes so fast that many customers may simply prefer logging in and conveniently accessing full account data. In our opinion, however, accessing your account balance information without having to log in can be a useful feature for some customers. It is advisable for banks to give easy access to this information regardless of the presence of biometrics or, above all, without hindering the login process.

Access to this information is configurable by the customer in the surveyed applications - so in our opinion it should not be additionally hidden - e.g. by requiring dedicated gestures on the login page.

Banks should also provide clear information on how to interpret the 100% amount when showing account balances as a percentage. Currently there are two different approaches in the market (100% amount as a maximum ceiling or simply as a conversion value). Both solutions have their advantages, it is important to inform the client how this option works.

softax