

Global Future Solutions



Who we are?

We help companies to create innovative products and offer consultancy services. Every engineer at Global Future Solutions has a minimum of three years of experience, and most have advanced technical degrees. Our engineers demonstrating not only strong technical ability, but they also are innovative, critical thinkers and problem solvers. Good English and communication skills are also required for each of our developers

We have two development offices in Ukraine in the city of Lviv and Zaporizhya. In Lviv we are focused mostly on web services development and desktop solutions, also have few mobile developers specialised on hybrid apps development for both Android and iOS platforms. In Zaporizhya we have a huge development state focused and specialised on mobile development only.

We are registered as SIA "Global Future Solutions" in Riga, Latvia.

Who we are?

Global Future Solutions



Our expertise:

We developed solutions of various complexity in the fintech and banking industries.

Our expertise:



**Payment
Gateway**



CRM



Insurance



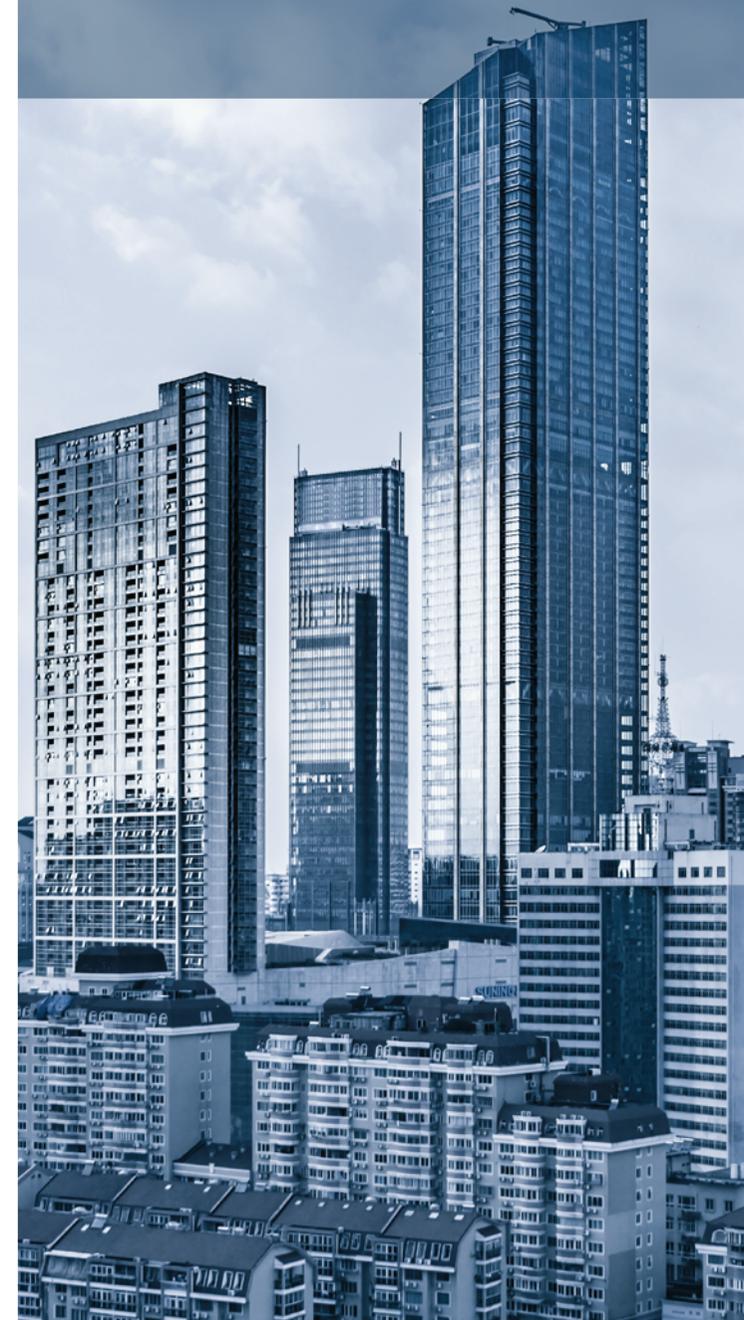
**Fraud tracking
system**

What is PSD2?

The Revised Payment Services Directive (PSD2) is a set of laws and regulations for payment services in the European Union (EU) and the European Economic Area (EEA). It's been around for a while - it was passed in 2015 - but the most important aspects for online payments come into effect on 14 September 2019 - the RTS (Regulatory Technical Standards) and strong customer authentication regulations come into effect.

What is PSD2?

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The goals of PSD2

- Make the European payments market more integrated and efficient
- Improve the level playing field for payment service providers (including new players)
- Make payments safer and more secure
- Protect consumers from fraud

The goals of
PSD2



Main PSD2 components:

- **SCA**
- Two-factor authentication monitoring
- Transaction Monitoring Mechanisms & Transaction Risk Analysis
- Independence of authentication elements
- Dynamic linking
- Replication protection
- Fraud monitoring platform.
- Real Time transactions
- Various alerts support
- Transaction identification rules
- Action creation for rules

Main PSD2
components:

Strong Customer Authentication (SCA):

SCA is a new European regulatory requirement to reduce fraud and make online payments more secure.

The enforcement of SCA in September 2019 makes 3D Secure 2 the main method for authenticating online card payments and meeting the new SCA requirements. As for now businesses can still use 3D Secure 1 in the following flow describen in a chart below.



Our Automated Risk Management System (ARM)

A risk management system that detects and blocks any fraudulent activity that fraudster might attempt with the customer's online banking account or payment card in real time. Our system proactively monitors accounts and enhances your bank's fraud prevention and detection by:

- Monitoring transactions for suspicious activity and money laundering violations
- Issuing alerts for various types of bank fraud vulnerabilities
- Comparing amounts and frequencies to known fraud trends and parameters
- Allowing authorized employees to easily create new rules and reports based on selected criteria
- Action creation for rules and tethering them in a logical flow.

ARM Dashboard starting page

On the main page, which is initially loaded you will see common information about processed transactions:

- How many transactions were made on selected date?
- How many users we have?
- How many transactions of particular type our users made?
- Do we have any marked transactions to be processed right now?
- How much transactions we can process in a minute and how much we are processing right now?

We also have a simplified version of transactions view for Welcome Page Dashboard which includes:

- User Details: Name, Surname, unique bank ID
- Transaction code
- Transaction status and rules applied to transaction

Infographics and fast access buttons are amazing way to make information structured and react on popped events fast to make user experience even better. All fraud alike transactions will be saved in encrypted database, and shown on the dashboard as a list alongside with extended statistics. We are creating custom dashboards with specific branding for each customer.

In case you click on transaction you will see pop-up window with transaction details and fast access button to act:

ARM Dashboard starting page

<p>Total Users</p> <p>2568</p> <p>4% From last Week</p>	<p>Saved Money (EUR)</p> <p>12300.50</p> <p>▲ 3% From last Week</p>	<p>Total Successful</p> <p>7,010</p> <p>▲ 34% From last Week</p>	<p>Total Alerts</p> <p>567</p> <p>▼ 12% From last Week</p>	<p>Total Declined</p> <p>315</p> <p>▲ 34% From last Week</p>	<p>Total Transactions</p> <p>7,325</p> <p>▲ 34% From last Week</p>
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Transaction Summary Weekly progress

June 9, 2019 - July 8, 2019



Suspicious Transactions

- Ms. Mary Jane \$2300. **Alert**
- Ms. Mary Jane \$2300. **Declined**
- Ms. Mary Jane \$2300. **Alert**
- Ms. Mary Jane \$2300. **Declined**
- Ms. Mary Jane \$2300. **Declined**

Success: EUR 231,809



Alerts: EUR 231,809



Declined: EUR 231,809



Pattern Matches

Top 5	Device	Progress
	F2C1	30%
	FBC4	10%
	FCFP	20%
	FECR	15%
	F2CC	30%

Transactions Globally geo-presentation

7.3k Transactions from 60 countries

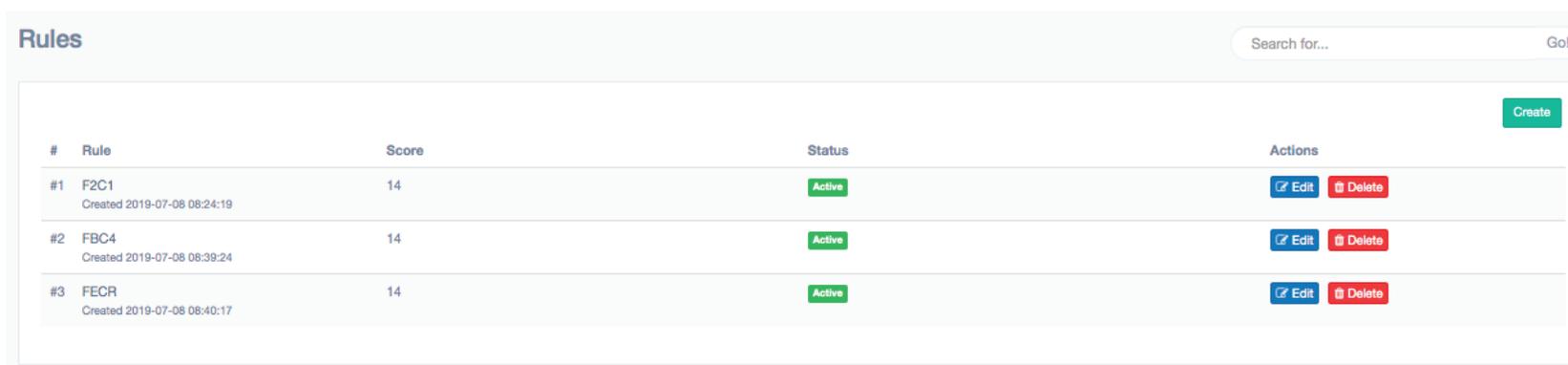
United States	33%
France	27%
Germany	16%
Spain	11%
Britain	10%



Creating Rules

GF Solutions Automated Risk Management system allowing authorised employees (flexible role based access out of the box) to easily create new rules using user-friendly interface.

You can see all created rules and their status (enabled/disabled) on Rules view:

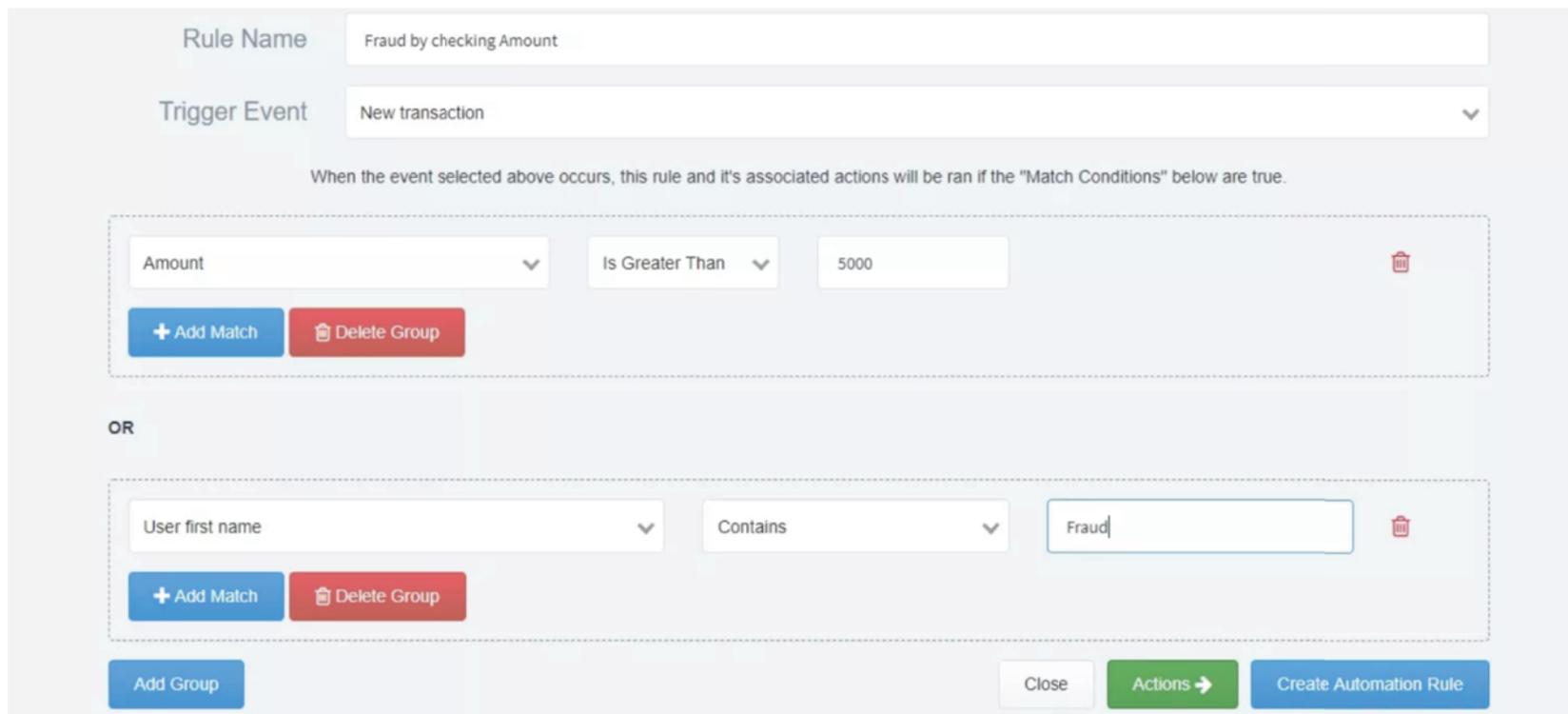


#	Rule	Score	Status	Actions
#1	F2C1 Created 2019-07-08 08:24:19	14	Active	Edit Delete
#2	FBC4 Created 2019-07-08 08:39:24	14	Active	Edit Delete
#3	FECR Created 2019-07-08 08:40:17	14	Active	Edit Delete

Creating Rules

Creating Rules

For instance we want to create new rule. Simplest rule: banking system has field in transaction 'amount', and it can be used for analyse so we add this field in our list of custom fields, this will look like a small data mapping. Because system should know correct key of the field to compare with this field in automation rule:



The screenshot displays a rule configuration interface. At the top, the 'Rule Name' is 'Fraud by checking Amount' and the 'Trigger Event' is 'New transaction'. A note states: 'When the event selected above occurs, this rule and it's associated actions will be ran if the "Match Conditions" below are true.'

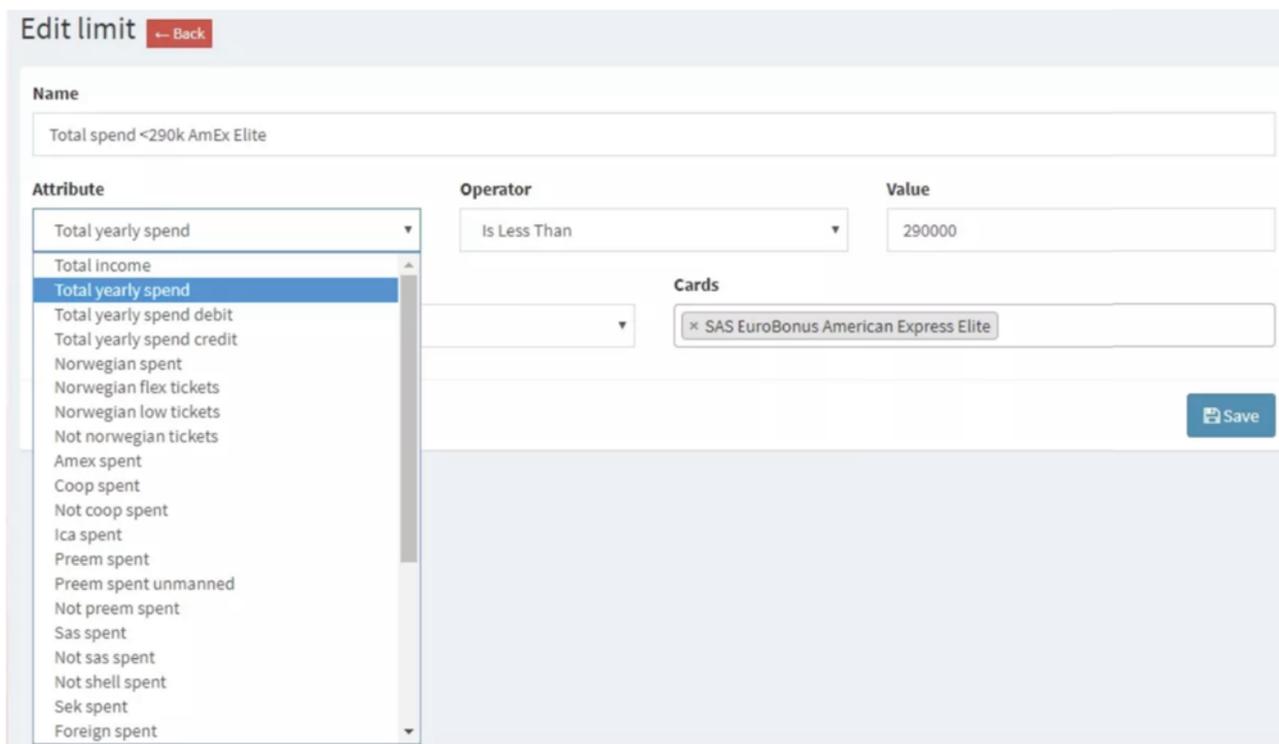
The first match condition is: 'Amount' (dropdown) 'Is Greater Than' (dropdown) '5000' (text input). Below this condition are buttons for '+ Add Match' and 'Delete Group'.

The second match condition is: 'User first name' (dropdown) 'Contains' (dropdown) 'Fraud' (text input). Below this condition are buttons for '+ Add Match' and 'Delete Group'.

At the bottom, there are buttons for 'Add Group', 'Close', 'Actions →', and 'Create Automation Rule'.

Creating Rules

After that we can configure our event based rules, this will look something like on the screenshots above, you select custom field and set the logic for it. According to {field} type, operators will be changed, for example for string types – operator (contains, starts with, etc) for integer (greater than, less than, equal).



Edit limit [← Back](#)

Name
Total spend <290k AmEx Elite

Attribute	Operator	Value
Total yearly spend	Is Less Than	290000

Cards
SAS EuroBonus American Express Elite

[Save](#)

We can create separated rules, groups of rules and also we implementing Sequences - which means we can analyse few transactions in a row and apply specific rules.

Actions creation for rule

After you finished with the rule setup, it's possible to add rule action that will occur after the rule took place in the way describen on the screenshot below.

Edit rule

Name * :
FBUSD1K

Description * :
Ban where usd more then 1k

Score * :
14

Status * :
Active

account_amount x v Start > x v 1000 Remove
Length

AND

account_currency x v Start == x v USD Remove
Length

+ Add Match Delete Group

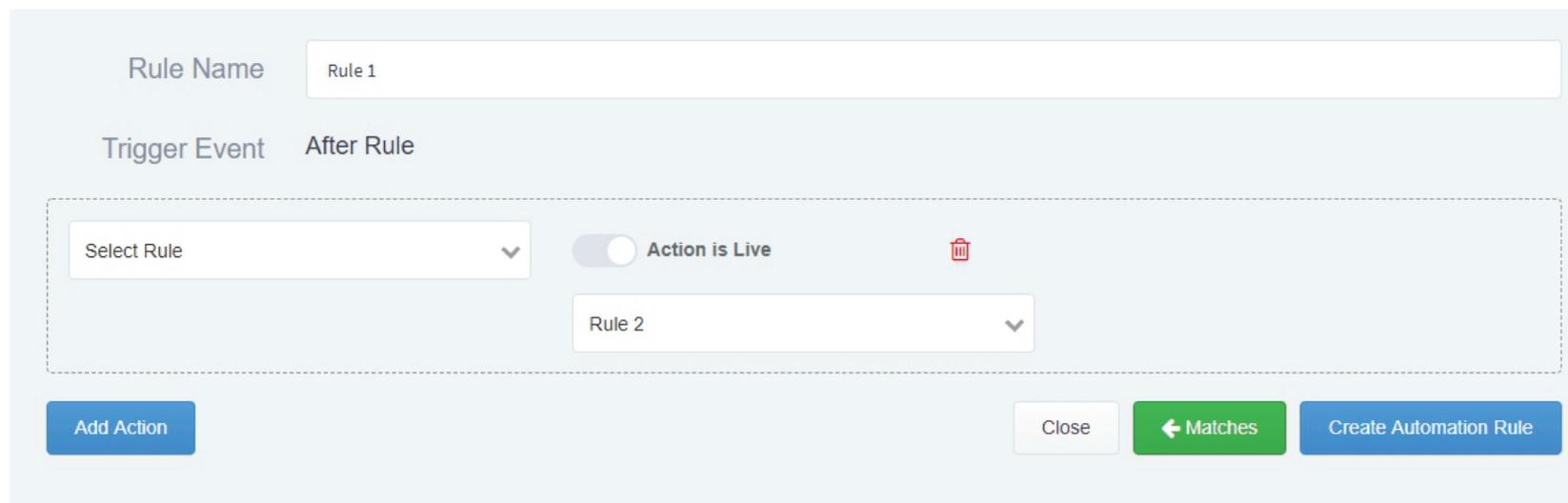
Add Group

Add action  click to select Action

Update Automation Rule

Actions creation for rule

Rule action defines any action that will happen after the rule. Example: If you want to run another rule after the first rule occurs you would need to create an action and select the specific rule for this action.



Rule Name

Trigger Event

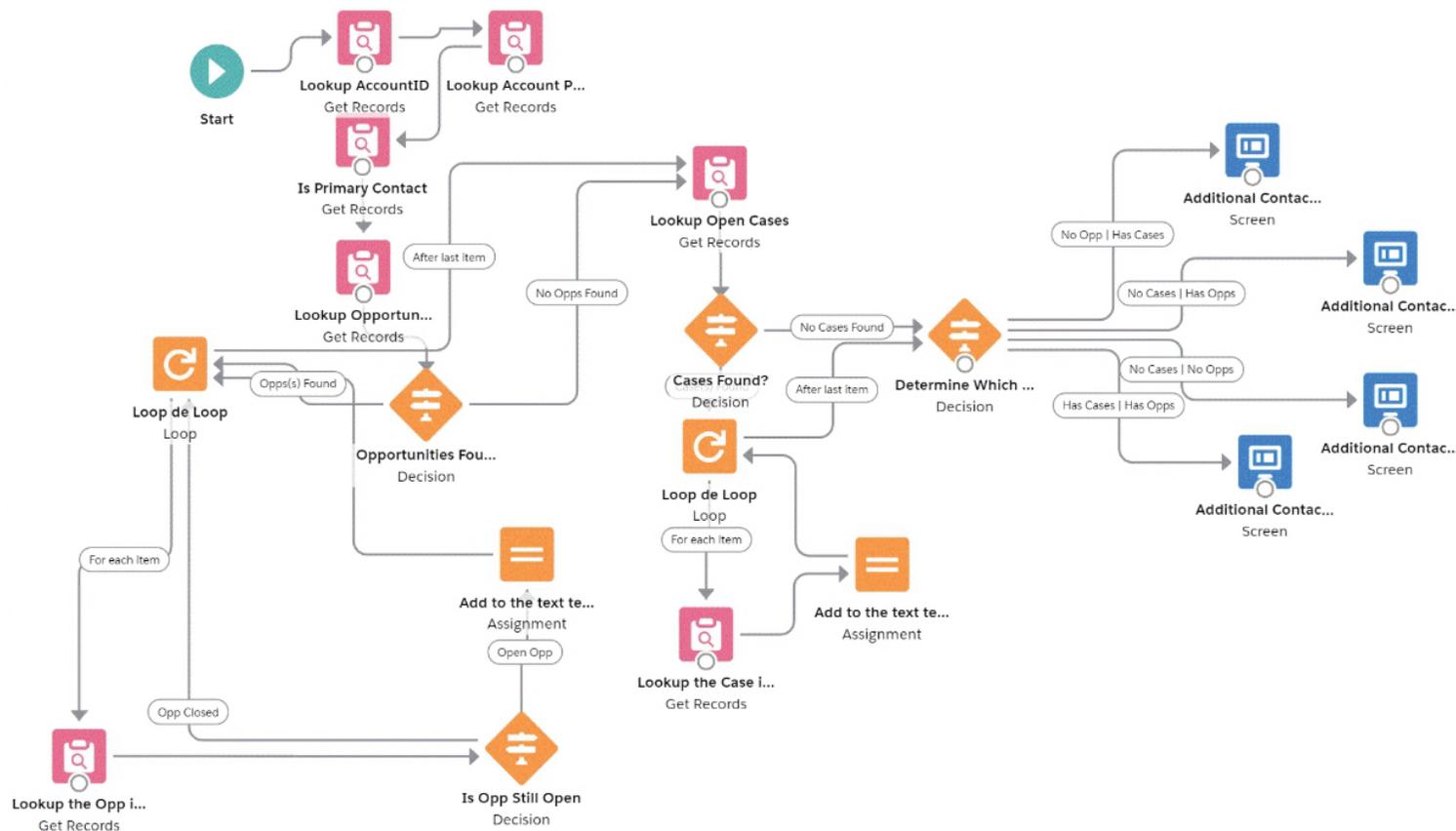
Select Rule

Action is Live 

Actions creation for rule

Grouped rules visual interpretation.

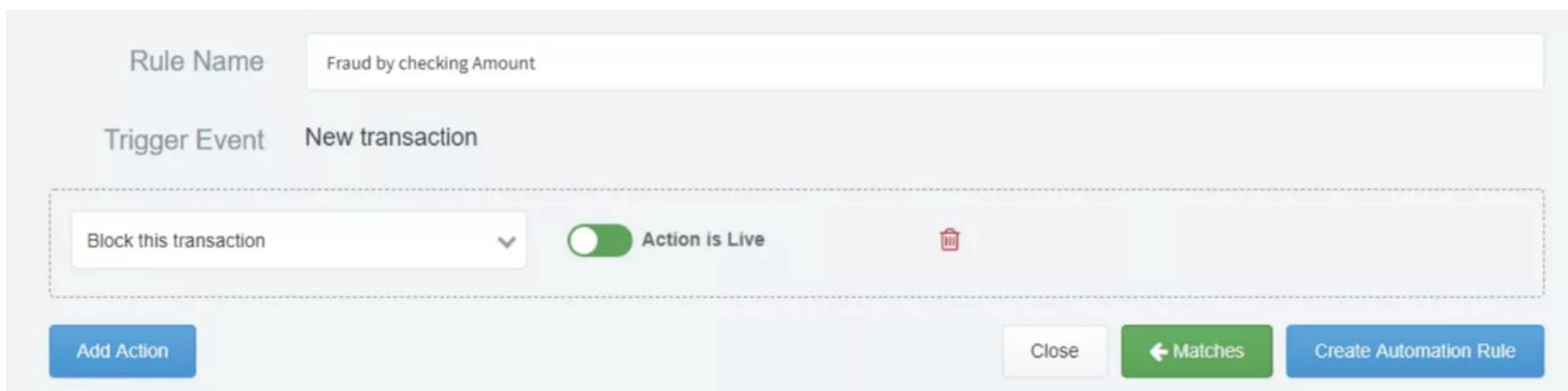
The entire rules and their actions can be viewed by a visual Flow. This flow allows the user to see the entire process of data transfers through the ARM system.



Get Notified

If something happens it is good to be notified. Our system allows you to configure specific Live Actions transactions which are important for your system.

For instance, we created a specific rule and we want to notify responsible person when it pops. The only thing we have to do is to mark particular rule as a Live Action and if it applicable to particular transaction - responsible person will be notified.



The screenshot shows a configuration interface for a rule. It includes a text input for the rule name, a dropdown for the trigger event, a dropdown for the action, a toggle for 'Action is Live', and a trash icon. At the bottom, there are buttons for 'Add Action', 'Close', 'Matches', and 'Create Automation Rule'.

Rule Name: Fraud by checking Amount

Trigger Event: New transaction

Action: Block this transaction

Action is Live:

Buttons: Add Action, Close, Matches, Create Automation Rule

Get Notified

What kind of notification you want to see?

Usually we providing different types of notifications, for instance:

- Notifications in user interface
- In-Browser push notifications
- Notification on employee email
- SMS notification
- Custom notifications (depends on customer needs)

What kind of notification you want to see?



Transactions

You will see the list of all transactions which are went through ARM system on transactions view.

Transactions						^ ✎ ✕		
Simple table with project listing with progress and editing options								
#	Transaction	Rules Applied				Score	Status	Show
#	Transaction Name #1qas4wee2 Created 01.01.2015	F2C1	F2C1	F2C1	F2C1	<div><div style="width: 57%;">57 out of 100</div></div>	Alert	View
#	Transaction Name #1qas4wee2 Created 01.01.2015	F2C1	F2C1			<div><div style="width: 47%;">47 out of 100</div></div>	Success	View
#	Transaction Name #1qas4wee2 Created 01.01.2015	F2C1	F2C1	F2C1		<div><div style="width: 77%;">77 out of 100</div></div>	Alert	View
#	Transaction Name #1qas4wee2 Created 01.01.2015	F2C1	F2C1	F2C1	F2C1	<div><div style="width: 60%;">60 out of 100</div></div>	Success	View
#	Transaction Name #1qas4wee2 Created 01.01.2015	F2C1	F2C1	F2C1		<div><div style="width: 86%;">86 out of 100</div></div>	Declined	View
#	Transaction Name #1qas4wee2 Created 01.01.2015	F2C1	F2C1	F2C1	F2C1	<div><div style="width: 35%;">35 out of 100</div></div>	Success	View
#	Transaction Name #1qas4wee2 Created 01.01.2015	F2C1	F2C1			<div><div style="width: 87%;">87 out of 100</div></div>	Declined	View
#	Transaction Name #1qas4wee2 Created 01.01.2015	F2C1	F2C1	F2C1		<div><div style="width: 77%;">77 out of 100</div></div>	Success	View
#	Transaction Name #1qas4wee2 Created 01.01.2015	F2C1	F2C1	F2C1	F2C1	<div><div style="width: 77%;">77 out of 100</div></div>	Success	View

You can get detailed information on any transaction (score, rules applied and other details on user and device). Also you are able to print or to generate a report and check out user profile to get the understanding who the customers are and check previous activity:

Transaction: #e3r22fsa01233dd ^ ↗ ✕

Amount	User ID	Transaction ID	Transaction Description
2300 EUR	2012300223	e3r22fsa01233dd	<p>Declined</p> <p>Transaction was declined due to few different rules was applied and score is 86</p> <p>User ID: 12314dd249</p> <p>Full Name: Tony Chicken</p> <p>Email: Tony.Chicken@arm.com</p> <p>Total Amount: 12,435.35 EUR</p> <p>Total Transactions Count: 156</p> <p>IP Address 192.168.121.11</p> <p>Location Riga, Latvia</p> <p> Print Generate PDF View Profile </p>

Fraud Score



86%

If you've decided to go in development mode and tweak all of this a bit, there are few things you should do.

Rules Applied to transaction:

- Two countries card present authorizations in defined period, not neighbor countries
F2C1
- Authorizations from bad countries list
FBC4
- Authorizations with decreasing amount within defined period starting with high amount
FECR

Security

Our System provides few best security features to reduce the vulnerabilities in the application as listed below:

- Authentication System
- Reduced Vulnerabilities From CSRF
- Protection against XSS (Cross Site Scripting)
- SQL Injection
- Security Packages

- Platform security, RBAC (Role Based Access Control)
- Permissions will be attached to roles, for better flexibility for accesses to some specific pages
- User password being hashed by using Bcrypt

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Security

Customer Details

We collect information about all our customers to have a clear understanding of who we are working with and check previous activity of particular users. Later this information will be used for machine learning algorithms to create new rules on users' behaviour and apply them on the fly.

Customer
Details

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Customer Details

A B C D E ... W X Y Z

Nicole Pearson
About: Web Designer / UX / Graphic Artist / Coffee Lover
Address:
Phone #:



4.0 ★★★★★ [View Profile](#)

Nicole Pearson
About: Web Designer / UI.
Address:
Phone #:



4.0 ★★★★★ [View Profile](#)

Nicole Pearson
About: Web Designer / UI.
Address:
Phone #:



4.0 ★★★★★ [View Profile](#)

Nicole Pearson
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Phone #:



4.0 ★★★★★ [View Profile](#)

Nicole Pearson
About: Web Designer / UI.
Address:
Phone #:



4.0 ★★★★★ [View Profile](#)

Customer Details

User Report Activity report



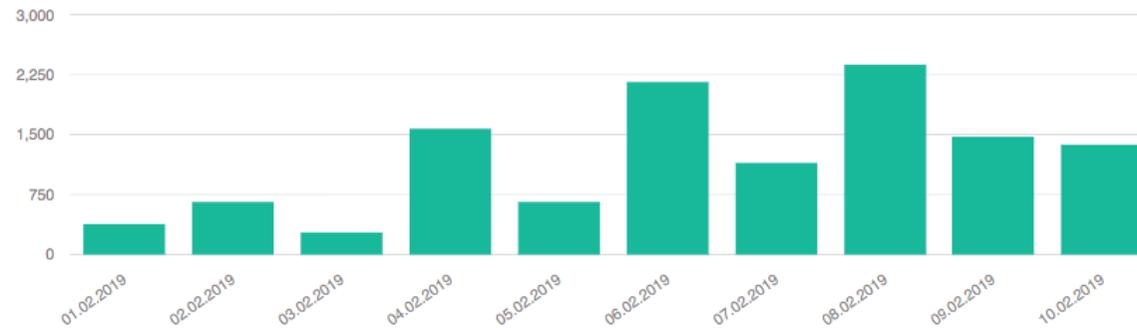
Samuel Doe

San Francisco, California, USA
Software Engineer
www.kimlabs.com

[Edit Profile](#)

User Activity Report

June 9, 2019 - July 8, 2019



Recent Activity | Transactions | Profile



Desmond Davison

Raw denim you probably haven't heard of them jean shorts Austin. Nesciunt tofu stumptown aliqua butcher retro keffiyeh dreamcatcher synth.

24
May



Brian Michaels

Raw denim you probably haven't heard of them jean shorts Austin. Nesciunt tofu stumptown aliqua butcher retro keffiyeh dreamcatcher synth.

21
May



Desmond Davison

Raw denim you probably haven't heard of them jean shorts Austin. Nesciunt tofu stumptown aliqua butcher retro keffiyeh dreamcatcher synth.

24
May

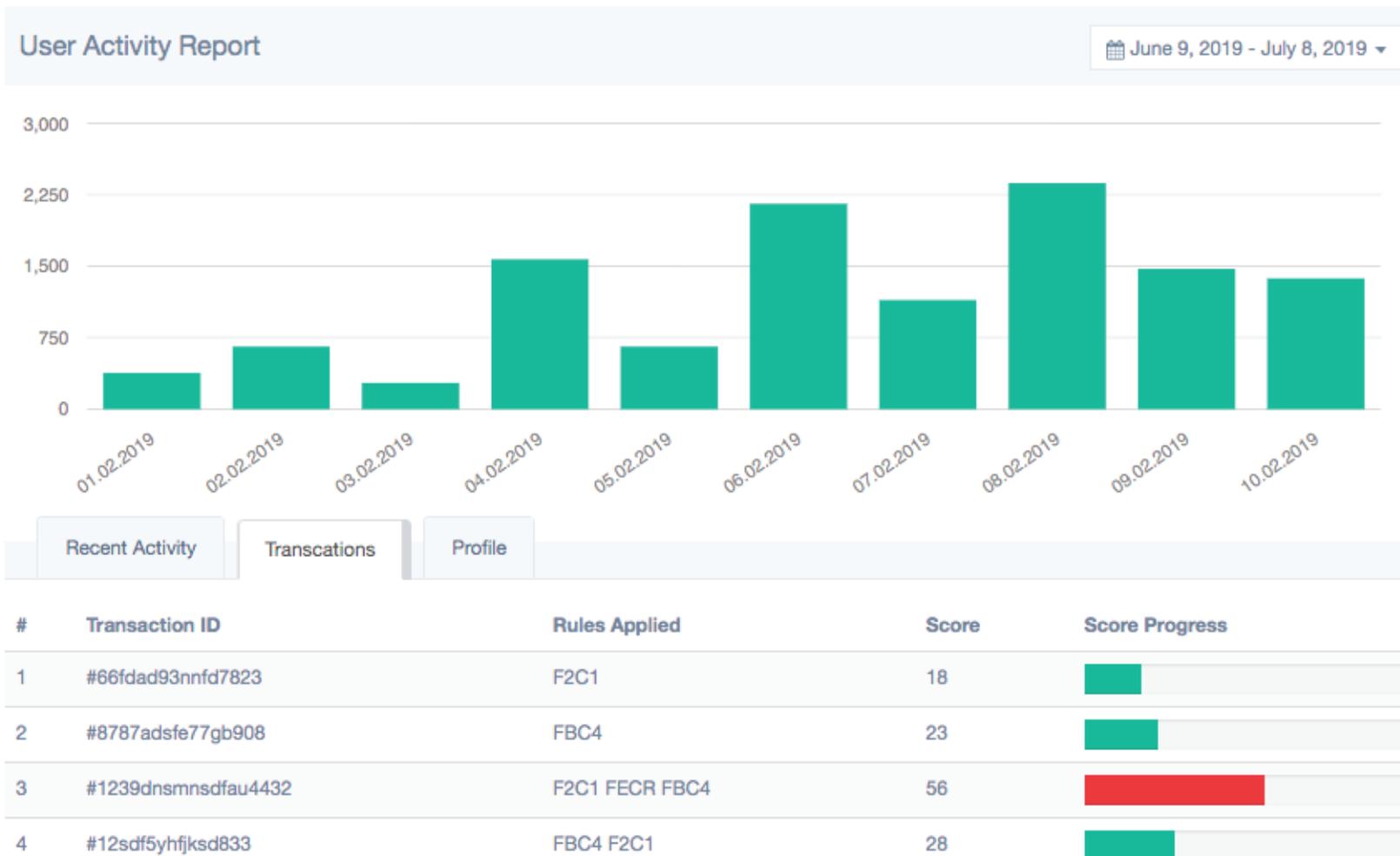


Brian Michaels

Raw denim you probably haven't heard of them jean shorts Austin. Nesciunt tofu stumptown aliqua butcher retro keffiyeh dreamcatcher synth.

21
May

Customer Details



Employees Management

As an administrator you can manage your employees using user friendly interface. We support Role Based Access which means you can create new roles and apply them to your users on the fly. You also can create new users, edit data of existing users and block any user if needed.

Users Create

#	Name	E-mail	Role	Actions
#1	Nathen Ankunding <small>Created 2019-07-08 08:03:18</small>	admin@bank.com	Admin	Edit Delete
#2	Emily Kuphal <small>Created 2019-07-08 08:03:18</small>	manager@bank.com	Manager	Edit Delete

Create user [← Back](#)

Full Name *

E-mail *

Password

Role

Employees Management

See all available roles in the list:

Roles			Create
#	Name	Actions	
#1	Admin Created 2019-07-08 08:03:17	Edit Delete	
#2	Manager Created 2019-07-08 08:03:17	Edit Delete	

Create new roles with specific restrictions:

Create role [← Back](#)

Name *

Permissions users mapping rules roles customers logs transactions reports

Reporting and Logging

Our system generates reports that your business needs on the fly. In the interface from the screenshots below you can see all the available reports which are automatically generated and shown on the Reports view. You can download or print out any report straight away. Our system also includes new reports on demand implementation.

Alerts on Date Sample ⌵ ⌵ ✕

Suspicious Transactions Date: 16/08/2016

Qty	Name	Transaction ID #	Rule	Description	Amount
1	Nicole Pearson	#455ax981ff221	F2C1	Ei snort testosterone trophy driving gloves handsome gerry Richardson helvetica tousled street art master testosterone trophy driving gloves handsome gerry Richardson	\$64.50
1	Nicole Pearson	#247jk925fd726	F2C1	Wes Anderson umami biodiesel	\$50.00
1	Nicole Pearson	#735er845df642	F2C1	Terry Richardson helvetica tousled street art master, Ei snort testosterone trophy driving gloves handsome letterpress erry Richardson helvetica tousled	\$10.70
1	Nicole Pearson	#422aw568sa642	F2C1	Tousled lomo letterpress erry Richardson helvetica tousled street art master helvetica tousled street art master, Ei snort testosterone	\$25.99

Totals

Total: \$265.24

Print Generate PDF

Declined Transactions on Date Sample ⌵ ⌵ ✕

Declined Transactions Date: 16/08/2016

Qty	Name	Transaction ID #	Rule	Description	Amount
1	Nicole Pearson	#455ax981ff221	F2C1	Ei snort testosterone trophy driving gloves handsome gerry Richardson helvetica tousled street art master testosterone trophy driving gloves handsome gerry Richardson	\$64.50
1	Nicole Pearson	#247jk925fd726	F2C1	Wes Anderson umami biodiesel	\$50.00
1	Nicole Pearson	#735er845df642	F2C1	Terry Richardson helvetica tousled street art master, Ei snort testosterone trophy driving gloves handsome letterpress erry Richardson helvetica tousled	\$10.70
1	Nicole Pearson	#422aw568sa642	F2C1	Tousled lomo letterpress erry Richardson helvetica tousled street art master helvetica tousled street art master, Ei snort testosterone	\$25.99

Totals

Total: \$265.24

Print Generate PDF

Reporting and Logging

If you need to check activity or provide the data for analyst you can use our logger for that. Just go to Logs view and you will be able to see real time log and download logs for previous periods.

01.06.2019 - 30.06.2019 [Download](#)

Show 10 entries Search:

Name	Rules Applied	Location	Score	Date	Amount
Airi Satou	Authorizations from bad countries list	Tokyo	33	2008/11/28	\$162,700
Angelica Ramos	Authorizations with decreasing amount within defined period starting with high amount	London	47	2009/10/09	\$1,200,000
Ashton Cox	Two countries card present authorizations in defined period, not neighbor countries	San Francisco	66	2009/01/12	\$86,000
Bradley Greer	Authorizations with decreasing amount within defined period starting with high amount	London	41	2012/10/13	\$132,000
Brenden Wagner	Authorizations with decreasing amount within defined period starting with high amount	San Francisco	28	2011/06/07	\$206,850
Brielle Williamson	Two countries card present authorizations in defined period, not neighbor countries	New York	61	2012/12/02	\$372,000
Bruno Nash	Authorizations with decreasing amount within defined period starting with high amount	London	38	2011/05/03	\$163,500
Caesar Vance	Authorizations with decreasing amount within defined period starting with high amount	New York	21	2011/12/12	\$106,450
Cara Stevens	Authorizations from bad countries list	New York	46	2011/12/06	\$145,600
Cedric Kelly	Two countries card present authorizations in defined period, not neighbor countries	Edinburgh	22	2012/03/29	\$433,060

Showing 1 to 10 of 57 entries Previous 1 2 3 4 5 6 Next

01.05.2019 - 31.05.2019 [Download](#)

01.04.2019 - 30.04.2019 [Download](#)

Integration

Easy integration is crucial for all our customers and we are trying to be as flexible as possible here.

GF Solutions Automated Risk Management System is a server-side software that is deployed into client infrastructure and could be integrated with any number of data sources (online banking server, payment cards processing system, etc.) and after that in real time receive data about any activity (any actions with the customer's account).

Universal API accepts any data elements in requests and forward it to Automated Risk Management System. Data then mapped to system custom fields which are used for rules definition and further evaluation and scoring.

There are also ability to create custom rules or exceptions for particular cases which also could be easily mapped to existing API services.

Integration

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ARM development team:



Andrey

Business analytics



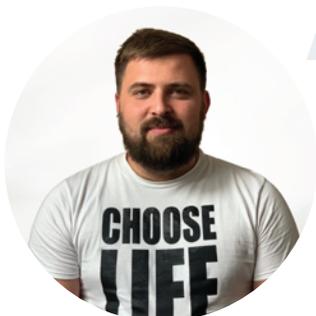
Ivan

Project Manager



Vasyl

Data Architect



Ivan

Back-end
developer



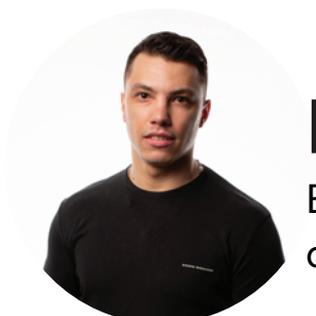
Nazar

Back-end
developer



Alex

Technical Lead



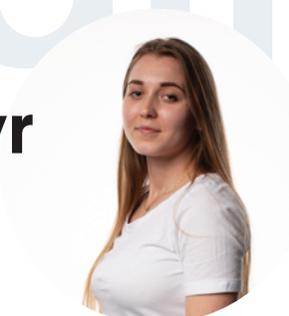
Dmytro

Back-end
developer



Volodymyr

Front-end
developer



Kate

Scrum Master

ARM

Team

Company Details:

Company Details:

Name: «Global Future Solutions» SIA

Registration number, date: 40203067144, 08.05.2017 VAT

Registration number: LV40203067144

Address: Rīga, Aleksandra Čaka iela 63 – 7, LV-1011 VAT registration

Number: LV40003151743

Bank Details:

Name: «SEB banka» AS

Registration number: 40003151743

Account No.: LV85UNLA0055000126997

SWIFT (BIC): UNLALV2X

Address: Meistaru iela 1, Valdlauči, Ķekavas pag.,

Ķekavas nov.,Latvia, LV-1076

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Company
Details: