Министерство науки и высшего образования Российской Федерации
Федеральное государственное бюджетное образовательное учреждение
высшего образования
«Московский государственный технический университет имени Н.Э. Баумана
(национальный исследовательский университет)»
(МГТУ им. Н.Э. Баумана)

ФАКУЛЬТЕТ **ИНФОРМАТИКА И СИСТЕМЫ УПРАВЛЕНИЯ**

КАФЕДРА **КОМПЬЮТЕРНЫЕ СИСТЕМЫ И СЕТИ (ИУ6)**

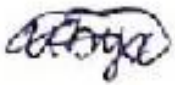
НАПРАВЛЕНИЕ ПОДГОТОВКИ **09.03.03 Прикладная информатика**

О Т Ч Е Т

по лабораторной работе № 1 2

Название: Сессии. Выполнение авторизации. Интеграционные тесты.

Дисциплина: Языки Интернет-программирования

Студент	ИУ6-35Б		10.11.2023	И.А. Буханцев
	(Группа)		(Подпись, дата)	(И.О. Фамилия)
Преподаватель				Е.Ю. Гаврилова
			(Подпись, дата)	(И.О. Фамилия)

Москва, 2023

Задание:

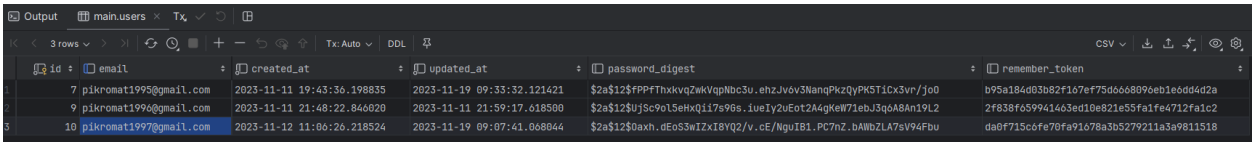
Модифицировать код приложения ЛР 8 таким образом, чтобы вычисление было невозможно без регистрации пользователя и аутентификации при помощи логина/пароля.

- Сгенерировать при помощи генератора scaffold ресурс для регистрации пользователей.
- Создать БД и выполнить миграцию соответствующим запросом rake.
- Проверить возможность добавления, редактирования информации и получения списка пользователей.
- Удалить отображение поля пароля при просмотре списка пользователей.
- Добавить контроллер сессий.
- Реализовать форму для ввода логина/пароля при обращении по адресу /. Добавить ссылку на регистрацию нового пользователя. При успешном вводе логина/пароля должно осуществляться перенаправление на страницу ввода параметров для вычисления.
- Реализовать при помощи контроллера сессий во всех действиях контроллера проверку о того, прошел ли пользователь аутентификацию или нет (с выдачей соответствующей отладочной информации).
- Вставить фильтры для запроса аутентификации.
- Подготовить интеграционный тест, позволяющий проверить регистрацию нового пользователя, вход под его именем и выполнение вычислений.
- Подготовить интеграционный тест для проверки невозможности выполнения вычислений без ввода логина/пароля.
- Проверить маршруты приложения с помощью rake routes и убрать лишние. Обеспечить доступ при обращении по адресу /.

Цель: Получение практических навыков в создании веб-приложений, использующих аутентификацию. Получить навыки написания интеграционных тестов приложений.

Запросы на добавление, изменение и вывод данных:

```
INSERT INTO users (email, password_digest, remember_token, created_at, updated_at)
VALUES ('test@email.com', '$2a$12$fPPfThxkvqZwkVqpNbc3u.ehzJv6v3NanqPkzQyPK5TiCx3vr/joO', 'b95a184d03b82f167ef75d6668096eb1e6dd4d2a', CURRENT_TIMESTAMP, CURRENT_TIMESTAMP);
UPDATE users
SET password_digest='123456789'
WHERE id = 1;
SELECT *
FROM users;
```



	id	email	created_at	updated_at	password_digest	remember_token
1	7	pikromat1995@gmail.com	2023-11-11 19:43:36.198835	2023-11-19 09:33:32.121421	$2a$12$fPPfThxkvqZwkVqpNbc3u.ehzJv6v3NanqPkzQyPK5TiCx3vr/joO	b95a184d03b82f167ef75d6668096eb1e6dd4d2a
2	9	pikromat1996@gmail.com	2023-11-11 21:48:22.846020	2023-11-11 21:59:17.618500	$2a$12$UjSc9ol5eHxQii7s9Gs.iueIy2uEot2A4gKeW71ebJ3q6A8An19L2	2f838f659941463ed10e821e55fa1fe4712fa1c2
3	10	pikromat1997@gmail.com	2023-11-12 11:06:26.218524	2023-11-19 09:07:41.068044	$2a$12$0axh.dEoS3wIZxI8YQ2/v.cE/NguIB1.PC7nZ.bAWbZLA7sV94FbU	da0f715c6fe70fa91678a3b5279211a3a9811518

Рисунок 1 – вывод таблицы БД

Демонстрация таблицы без пароля:

```
CREATE VIEW SHOW_USERS AS
SELECT id, email, created_at, updated_at
FROM users;
SELECT *
FROM SHOW_USERS
```

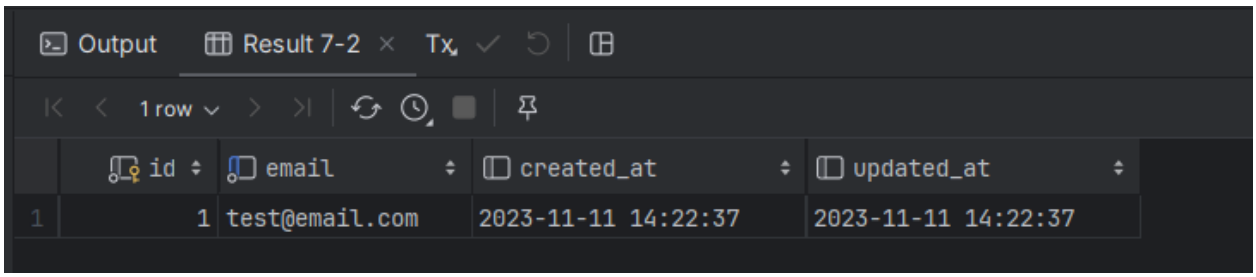


Рисунок 2 – вывод запроса

stylesheets/application.scss

```
/*
 *= require_tree .
 *= require_self
 */

@import "bootstrap";

table {
  border: 3px solid black;
  border-collapse: collapse;
  width: 20%;
}

td {
  border: 1px solid #333;
  text-align: center;
}
```

stylesheets/custom.css.scss

```
@import "bootstrap";
```

```
html, body {
  height: 100%;
}

html {
  position: relative;
}

footer {
  position: fixed;
  width: 100%;
  bottom: 0;
}

input, textarea, select, .uneditable-input {
  border: 1px solid #bbb;
  width: 100%;
  margin-bottom: 15px;
}

input {
  height: auto !important;
}

#error_explanation {
  color: #f00;

  ul {
    list-style: none;
```

```
    margin: 0 0 18px 0;
  }
}

.field_with_errors {
  @extend .control-group !optional;
  @extend .error !optional;
}
```

controllers/application_controller.rb

```
class ApplicationController < ActionController::Base
  protect_from_forgery with: :exception
  include SessionsHelper
end
```

controllers/sessions_controller.rb

```
class SessionsController < ApplicationController
  def new
  end

  def create
    msg_text = ''
    msg_status = :success

    email = params[:session][:email]
    password = params[:session][:password]
```

```
  puts password

  respond_to do |format|
    user = User.find_by(email: email.downcase)

    if !user
      msg_text = 'Пользователя не существует'
      msg_status = :danger
    elsif !user.authenticate(password)
      msg_text = 'Неверный пароль'
      msg_status = :danger
    end

    if msg_status == :success
      sign_in user
      msg_text = 'Вы успешно вошли'
      flash[msg_status] = msg_text
      format.html { redirect_to input_path }
      format.json { render :show, status: :created, location: input_path }
    else
      flash.now[msg_status] = msg_text
      format.html { render :new, status: :unprocessable_entity }
      format.json { render json: @user.errors, status: :unprocessable_entity }
    end
  end
end

def destroy
  sign_out
  redirect_to root_url
```

```
  end
end
```

controllers/twins_controller.rb

```
# frozen_string_literal: true
class TwinsController < ApplicationController
  def input
    unless signed_in?
      redirect_to signin_path
    end
  end

  def view
    unless signed_in?
      redirect_to signin_path
    end

    n = params[:n].to_i
    @result = twins(n)
  end

  def is_prime(num)
    return false if num <= 1
    Math.sqrt(num).to_i.downto(2).each {|i| return false if num % i == 0}
    true
  end

  def twins(n)
    pairs = {}
```

```
    (n..2 * n).each do |first|
      (first..2 * n).each do |second|
        if second - first == 2 and is_prime(first) and is_prime(second)
          pairs[first] = second
        end
      end
    end

    [pairs, to_table(pairs)]

  end

  def to_table(pairs = @result, table_class = 'table table-striped')
    @table = 'Unknown!'

    unless pairs.empty?
      rows = ''
      pairs.each do |key, value|
        rows += "<tr><td>#{key}</td><td>#{value}</td></tr>"
      end
      @table = "<table class=\"#{table_class}\"><tbody>#{rows}</tbody></table>"
    end

    @table
  end
end
```

controllers/users_controller.rb

```
class UsersController < ApplicationController
  before_action :set_user, only: %i[ show edit update destroy ]
```

```ruby
# GET /users or /users.json
def index
  @users = User.all
end

# GET /users/1 or /users/1.json
def show
end

# GET /users/new
def new
  @user = User.new
end

# GET /users/1/edit
def edit
end

# POST http://127.0.0.1:3000/signup
def create
  msg_text = ''
  msg_status = :success

  email = params[:user][:email]
  password = params[:user][:password]
  password_confirmation = params[:user][:password_confirmation]
  puts password

  @user = User.new(user_params)
```

```
    respond_to do |format|

      if @user
        if User.find_by_email(email)
          msg_text = 'Пользователь уже зарегестрирован!'
          msg_status = :danger
        elsif password != password_confirmation
          msg_text = 'Пароль для подтверждения введен неверно'
          msg_status = :danger
        elsif       !email.match?('[a-z0-9]+[_a-z0-9\.-]*[a-z0-9]+@[a-z0-9-]+(\.[a-z0-9-
]+)*(\.[a-z]{2,4})')
          msg_text = 'Введите почту корректно'
          msg_status = :danger
        end

        if msg_status == :success and @user.save
          sign_in @user
          msg_text = 'Спасибо за регистрацию'
          flash[msg_status] = msg_text

          format.html { redirect_to input_path }
          format.json { render :show, status: :created, location: input_path }
        else
          flash.now[msg_status] = msg_text
          format.html { render :new, status: :unprocessable_entity }
          format.json { render json: @user.errors, status: :unprocessable_entity }
        end
      end
    end
```

```
  end

  # PATCH/PUT /users/1 or /users/1.json
  def update
    respond_to do |format|
      if @user.update(user_params)
        format.html { redirect_to user_url(@user), notice: "User was successfully updated." }
        format.json { render :show, status: :ok, location: @user }
      else
        format.html { render :edit, status: :unprocessable_entity }
        format.json { render json: @user.errors, status: :unprocessable_entity }
      end
    end
  end

  # DELETE /users/1 or /users/1.json
  def destroy
    @user.destroy

    respond_to do |format|
      format.html { redirect_to users_url, notice: "User was successfully destroyed." }
      format.json { head :no_content }
    end
  end

  private

  # Use callbacks to share common setup or constraints between actions.
```

```
  def set_user
    @user = User.find(params[:id])
  end

  # Only allow a list of trusted parameters through.
  def user_params
    params.require(:user).permit(:email, :password)
  end
end
```

helpers/sessions_helper.rb

```
module SessionsHelper
  def sign_in(user)
    remember_token = User.new_remember_token
    cookies.permanent[:remember_token] = remember_token
    user.update_attribute(:remember_token, User.encrypt(remember_token))
    self.current_user = user
  end

  def sign_out
    current_user.update_attribute(:remember_token,
                                  User.encrypt(User.new_remember_token))
    cookies.delete(:remember_token)
    self.current_user = nil
  end

  def current_user=(user)
    @current_user = user
```

```
  end

  # Пользователь является вошедшим если в сессии существует текущий пользователь, т.е., если current_user не является nil
  def signed_in?
    !current_user.nil?
  end

  # Поиск текущего пользователя с помощью remember_token.
  def current_user
    remember_token = User.encrypt(cookies[:remember_token])
    @current_user ||= User.find_by(remember_token: remember_token)
  end
end
```

javascript/controllers/application.js

```
// Configure your import map in config/importmap.rb. Read more: https://github.com/rails/importmap-rails
import "@hotwired/turbo-rails"
import "controllers"

import "jquery"
import "jquery_ujs"
import "popper"
import "bootstrap"
import "src/main"
```

javascript/src/main.js

```
$(document).on('click', '.btn-close', function () {
   $('.alert').fadeOut();
});
```

models/user.rb

```
class User < ApplicationRecord
  before_save { self.email = email.downcase }
  before_create :create_remember_token

  VALID_EMAIL_REGEX = /\A[\w+\-.]+@[a-z\d\-.]+\.[a-z]+\z/i
  has_secure_password
  validates :email, presence: true,
            format: { with: VALID_EMAIL_REGEX },
            uniqueness: { case_sensitive: false }
  validates :password, length: { minimum: 4 }

  def User.new_remember_token
    SecureRandom.urlsafe_base64
  end

  def User.encrypt(token)
    Digest::SHA1.hexdigest(token.to_s)
  end

  private

  def create_remember_token
```

```
    self.remember_token = User.encrypt(User.new_remember_token)
  end
end
```

integration/authentication_pages_test.rb

```
require "test_helper"
# https://www.softcover.io/read/28fdb94f/ruby_on_rails_tutorial_3rd_edition/sign_up

class AuthenticationPagesTest < ActionDispatch::IntegrationTest
  def add_record(email, password)
    record = User.new(:email => email, :password => password)
    record.save
    record
  end

  ######################################## Sign up ########################################
  # Проверяем доступность страницы регистрации
  test "test registration page access" do
    get signup_url
    assert_response :success
  end

  # Проверяем, что нельзя зарегестрировать того же пользователя
  test 'attempt to register with existing user details' do
    # Создаем пользователя
    add_record('test@test.com', '123456')
```

```
  get signup_url
  assert_response :success

  post users_url, params: { "authenticity_token" => "token", "user" => { "email" => "test@test.com", "password" => "123456", "password_confirmation" => "123456" } }

  assert_response 422
 end

 # Проверяем, что пользователя можно зарегестрировать
 test 'successfully user registration' do
  get signup_url
  assert_response :success

  # Смотрим, что такой пользователь только 1
  assert_difference 'User.count', 1 do
   post users_url, params: { "authenticity_token" => "token", "user" => { "email" => "test@test.com", "password" => "123456", "password_confirmation" => "123456" } }
   follow_redirect!
  end

  assert_template 'input'
  assert_response 200
 end

 ######################################## Sign in ########################################
```

```
  # Проверяем доступность страницы входа
  test "test login page access" do
    get signin_url
    assert_response :success
  end

  test 'successfully user login' do
    add_record('test@test.com', '123456')

    assert_difference 'User.count', 0 do
      post sessions_url, params: { "authenticity_token" => "token", "session" => { "email" => "test@test.com", "password" => "123456" } }
      follow_redirect!
    end

    assert_template 'input'
    assert_response 200
  end

  test 'login of a non-existent user' do
    post sessions_url, params: { "authenticity_token" => "token", "session" => { "email" => "test@test.com", "password" => "123456" } }

    assert_template 'sessions/new'
    assert_response 422
  end

  test 'login without password' do
    post sessions_url, params: { "authenticity_token" => "token", "session" => { "email" => "test@test.com", "password" => "" } }
```

```
    assert_template 'sessions/new'
    assert_response 422
  end

  ##################################### Sign out ########################################
  test "test logout success" do
    # Добавляем тестового юзера в БД
    add_record('test@test.com', '123456')

    assert_difference 'User.count', 0 do
      # login
      post sessions_url, params: { "authenticity_token" => "token", "session" => { "email" => "test@test.com", "password" => "123456" } }
      follow_redirect!
    end

    assert_difference 'User.count', 0 do
      # Logout
      delete signout_url
      follow_redirect! # перенаправлены в input, там проверочка, что не залогинились и иедм в login
      follow_redirect! # из input в login
    end

    assert_template 'sessions/new'
    assert_response 200
  end
```

```
  ##################################### Вычисления не возможны без входа
#########################################
  test "Calculations are impossible without sign in" do
    # view
    get view_url, params: { n: 10 }

    # Если не вошли, значит редиректимся в signin
    assert_response 302

    # input
    get input_url
    assert_response 302
  end
end
```

layouts/_footer.html.erb

```
<footer class="footer bg-dark text-center text-lg-start">
  <div class="text-center p-3 text-light">
    © 2023 Copyright
  </div>
</footer>
```

layouts/_header.html.erb

```
<header>
  <nav class="navbar navbar-expand-lg navbar-dark bg-dark">
    <div class="container-fluid">
      <a class="navbar-brand" href="#">ЛР12</a>
```

```
    <button class="navbar-toggler" type="button" data-bs-toggle="collapse" data-bs-target="#navbarNav">
      <span class="navbar-toggler-icon"></span>
    </button>
    <div class="collapse navbar-collapse" id="navbarNav">
      <ul class="navbar-nav me-auto mb-2 mb-lg-0">
        <% if signed_in? %>
          <li class="nav-item">
            <%= link_to 'Ввод', input_path, class: "nav-link  #{ request.path == input_path || request.path == '/' ? 'active' : '' }" %>
          </li>
          <li class="nav-item">
            <%= link_to 'Вывод', view_path, class: "nav-link  #{ request.path == view_path ? 'active' : '' }" %>
          </li>
          <li class="nav-item">
            <%= link_to 'Выход', signout_path, method: "delete", class: "nav-link  #{ request.path == signout_path ? 'active' : '' }" %>
          </li>
        <% else %>
          <li class="nav-item">
            <%= link_to 'Вход', signin_path, class: "nav-link  #{ request.path == signin_path ? 'active' : '' }" %>
        <% end %>
      </ul>
    </div>
  </div>
 </nav>
</header>
```

layouts/_shim.html.erb

```
<!--[if lt IE 9]>
<script src="http://html5shim.googlecode.com/svn/trunk/html5.js"></script>
<![endif]-->
```

layouts/application.html.erb

```
<!DOCTYPE html>
<html lang="ru">
<head>
  <title>Twins</title>
  <meta name="viewport" content="width=device-width,initial-scale=1">
  <link rel="icon" type="image/png" href="/assets/logo.png">
  <%= csrf_meta_tags %>
  <%= csp_meta_tag %>

  <%= stylesheet_link_tag "application", "data-turbo-track": "reload" %>
  <%= javascript_importmap_tags %>
  <%= render 'layouts/shim' %>
</head>

<body>
<%= render 'layouts/header' %>
<div class="container">
  <% flash.each do |key, value| %>
    <div class="alert alert-<%= key %> alert-dismissible fade show" role="alert"><%= value %>
```

```
    <button id="flash-close" type="button" class="btn-close" data-dismiss="alert">
    </button>
   </div>
  <% end %>
  <%= yield %>
</div>

<%= render 'layouts/footer' %>
</body>
</html>
```

sessions/new.html.erb

```
<% provide(:title, "Sign in") %>
<h1>Вход</h1>

<div class="row">
  <div class="span6 offset3">
    <%= form_for(:session, url: sessions_path) do |f| %>

      <%= f.label :email %>
      <%= f.text_field :email, class: "form-control", required: true %>

      <%= f.label 'Пароль' %>
      <%= f.password_field :password, minlength: 4, class: "form-control", required: true %>

      <%= f.submit "Войти", class: "btn btn-large btn-primary mt-4" %>
```

```
    <% end %>

    <p>Еще не зарегистрированы? <%= link_to "Зарегестрироватья сейчас!", signup_path %></p>
  </div>
</div>
```

twins/input.html.erb

```
<h1>Twins#input</h1>

<div class="row">
  <div class="span6 offset3">
    <p>
      <a href="<%= url_for(only_path: false) + '.html.erb' %>">Мы находимся по
        адресу: <%= url_for(only_path: false) + '.html.erb' %></a>
    </p>

    <form action="<%= view_path %>" method="get" accept-charset="UTF-8">
      <div class="form-group">
        <label for="n"></label>
        <input type="number" id="n" name="n" min="0" minlength="1" oninput="this.value = Math.abs(this.value);" class="form-control" required/>
      </div>

      <button type="submit" class="btn btn-large btn-primary mt-4">Ввести</button>
    </form>
  </div>
```

```
</div>
```

twins/view.html.erb

```
<h1>Twins#view</h1>

<div>
  <p>
    <a href="<%= url_for(only_path: false) + '.html.erb' %>">Мы находимся по
      адресу: <%= url_for(only_path: false) + '.html.erb' %></a>
  </p>

  <%= @table.html_safe %>
  <br/>
  <%= link_to "Рассчитать заново", input_path %>
</div>
```

users/new.html.erb

```
<% provide(:title, 'Sign up') %>
<h1>Регистрация</h1>

<div class="row">
  <div class="span6 offset3">
    <%= form_for(@user) do |f| %>

      <%= f.label :email %>
      <%= f.text_field :email, class: "form-control", required: true %>
```

```
    <%= f.label 'Пароль' %>
    <%= f.password_field :password, class: "form-control", required: true %>

    <%= f.label 'Подтверждение пароля', 'Confirmation' %>
    <%= f.password_field :password_confirmation, minlength: 4, class: "form-control", suggested: "new-password", required: true %>

    <%= f.submit "Зарегестрироваться", class: "btn btn-large btn-primary mt-4" %>
  <% end %>
 </div>
</div>
```

environments/development.rb

```
require "active_support/core_ext/integer/time"

Rails.application.configure do
 # Settings specified here will take precedence over those in config/application.rb.

 # In the development environment your application's code is reloaded any time
 # it changes. This slows down response time but is perfect for development
 # since you don't have to restart the web server when you make code changes.
 config.cache_classes = false

 # Do not eager load code on boot.
 config.eager_load = false

 # Show full error reports.
```

```
config.consider_all_requests_local = true

# Enable server timing
config.server_timing = true

# Enable/disable caching. By default caching is disabled.
# Run rails dev:cache to toggle caching.
if Rails.root.join("tmp/caching-dev.txt").exist?
  config.action_controller.perform_caching = true
  config.action_controller.enable_fragment_cache_logging = true

  config.cache_store = :memory_store
  config.public_file_server.headers = {
    "Cache-Control" => "public, max-age=#{2.days.to_i}"
  }
else
  config.action_controller.perform_caching = false

  config.cache_store = :null_store
end

# Store uploaded files on the local file system (see config/storage.yml for options).
config.active_storage.service = :local

# Don't care if the mailer can't send.
config.action_mailer.raise_delivery_errors = false

config.action_mailer.perform_caching = false

# Print deprecation notices to the Rails logger.
```

```
  config.active_support.deprecation = :log

  # Raise exceptions for disallowed deprecations.
  config.active_support.disallowed_deprecation = :raise

  # Tell Active Support which deprecation messages to disallow.
  config.active_support.disallowed_deprecation_warnings = []

  # Raise an error on page load if there are pending migrations.
  config.active_record.migration_error = :page_load

  # Highlight code that triggered database queries in logs.
  config.active_record.verbose_query_logs = true

  # Suppress logger output for asset requests.
  config.assets.quiet = true

  # Raises error for missing translations.
  # config.i18n.raise_on_missing_translations = true

  # Annotate rendered view with file names.
  # config.action_view.annotate_rendered_view_with_filenames = true

  # Uncomment if you wish to allow Action Cable access from any origin.
  # config.action_cable.disable_request_forgery_protection = true

  # config.action_mailer.default_url_options = { host: 'localhost', port: 3000 }
  # config.action_view.preload_links_header = false
  # config.action_view.automatically_disable_submit_tag = false
end
```

initializers/assets.rb

```
# Be sure to restart your server when you modify this file.

# Version of your assets, change this if you want to expire all your assets.
Rails.application.config.assets.version = "1.0"
Rails.application.config.assets.precompile += %w( jquery.min.js jquery_ujs.js bootstrap.min.js popper.js )
```

routes.rb

```
Rails.application.routes.draw do
  resources :users
  resources :sessions, only: [:new, :create, :destroy]

  match '/input', to: 'twins#input', via: 'get'
  match '/view', to: 'twins#view', via: 'get'

  match '/signup', to: 'users#new', via: 'get'
  match '/signin', to: 'sessions#new', via: 'get'
  match '/signout', to: 'sessions#destroy', via: 'delete'

  root 'twins#input'
end
```

importmap.rb

```
# Pin npm packages by running ./bin/importmap
```

```
pin "application", preload: true
pin "@hotwired/turbo-rails", to: "turbo.min.js", preload: true
pin "@hotwired/stimulus", to: "stimulus.min.js", preload: true
pin "@hotwired/stimulus-loading", to: "stimulus-loading.js", preload: true
pin_all_from "app/javascript/controllers", under: "controllers"

pin_all_from 'app/javascript/src', under: 'src'
pin "jquery", to: "jquery.min.js", preload: true
pin "jquery_ujs", to: "jquery_ujs.js", preload: true
pin "popper", to: "popper.js", preload: true
pin "bootstrap", to: "bootstrap.min.js", preload: true
```

Gemfile

```
# frozen_string_literal: true

source 'https://rubygems.org'
git_source(:github) { |repo| "https://github.com/#{repo}.git" }

gem "jquery-rails"
gem "bootstrap"
gem "sassc-rails"

gem 'rails-controller-testing'

# Bundle edge Rails instead: gem "rails", github: "rails/rails", branch: "main"
gem 'rails', '~> 7.1.0'

# The original asset pipeline for Rails [https://github.com/rails/sprockets-rails]
gem 'sprockets-rails'
```

```
# Use sqlite3 as the database for Active Record
gem 'sqlite3'

# Use the Puma web server [https://github.com/puma/puma]
gem 'puma'

# Use JavaScript with ESM import maps [https://github.com/rails/importmap-rails]
gem 'importmap-rails'

# Hotwire's SPA-like page accelerator [https://turbo.hotwired.dev]
gem 'turbo-rails'

# Hotwire's modest JavaScript framework [https://stimulus.hotwired.dev]
gem 'stimulus-rails'

# Build JSON APIs with ease [https://github.com/rails/jbuilder]
gem 'jbuilder'

# Use Active Model has_secure_password [https://guides.rubyonrails.org/active_model_basics.html#securepassword]
gem "bcrypt"

# Windows does not include zoneinfo files, so bundle the tzinfo-data gem
gem 'tzinfo-data', platforms: %i[ mingw mswin x64_mingw jruby ]

# Reduces boot times through caching; required in config/boot.rb
gem 'bootsnap', require: false

group :development, :test do
```

```
  # See https://guides.rubyonrails.org/debugging_rails_applications.html#debugging-with-the-debug-gem
  gem 'debug', platforms: %i[ mri mingw x64_mingw ]
  gem 'rspec-rails'
end

group :development do
  # Use console on exceptions pages [https://github.com/rails/web-console]
  gem 'web-console'
end

group :test do
  # Use system testing [https://guides.rubyonrails.org/testing.html#system-testing]
  gem 'capybara'
  gem 'selenium-webdriver'

end
```

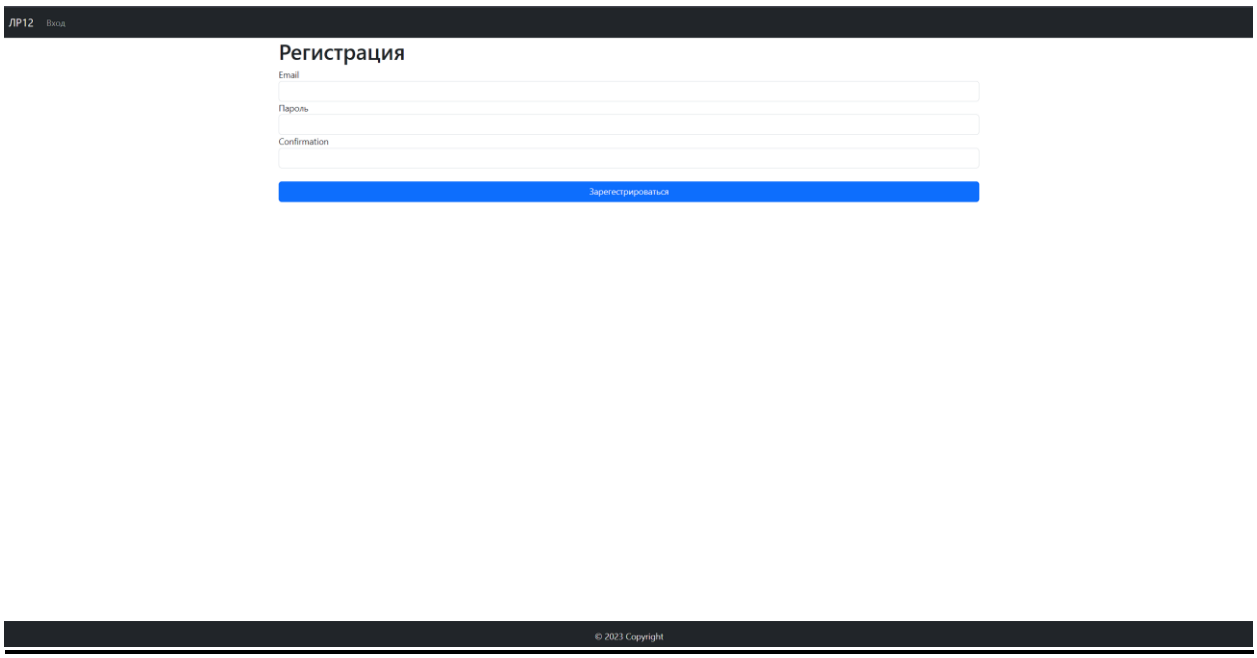


Рисунок 3 – форма регистрации

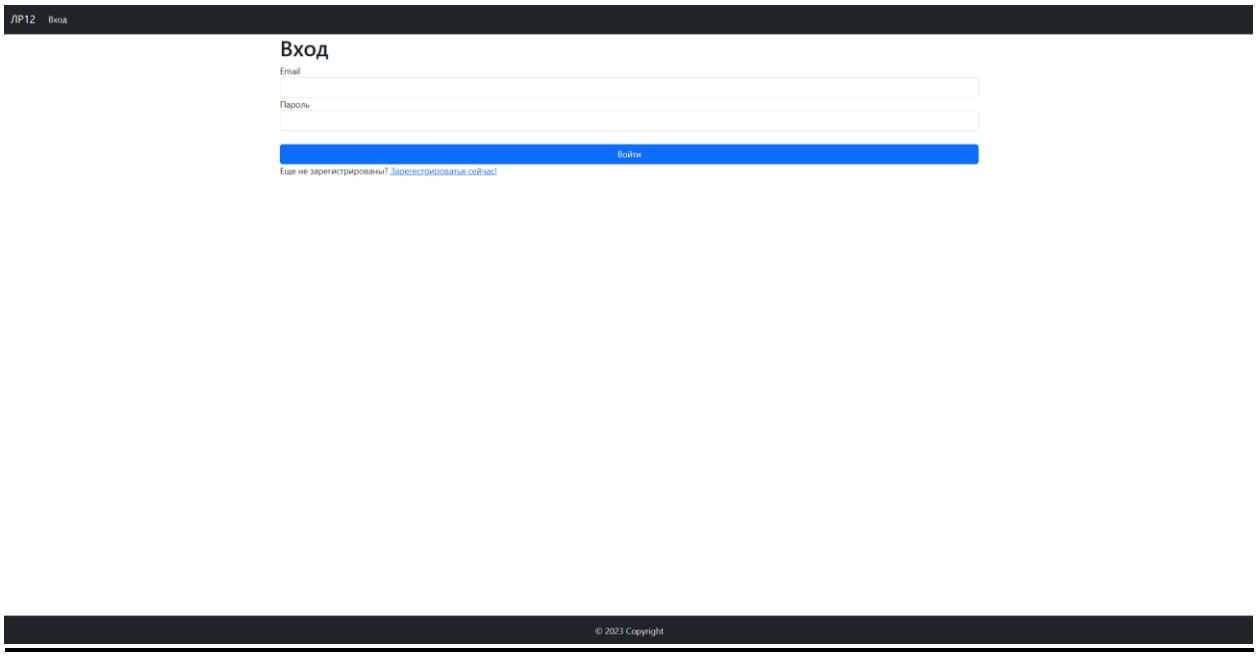


Рисунок 4 – форма входа

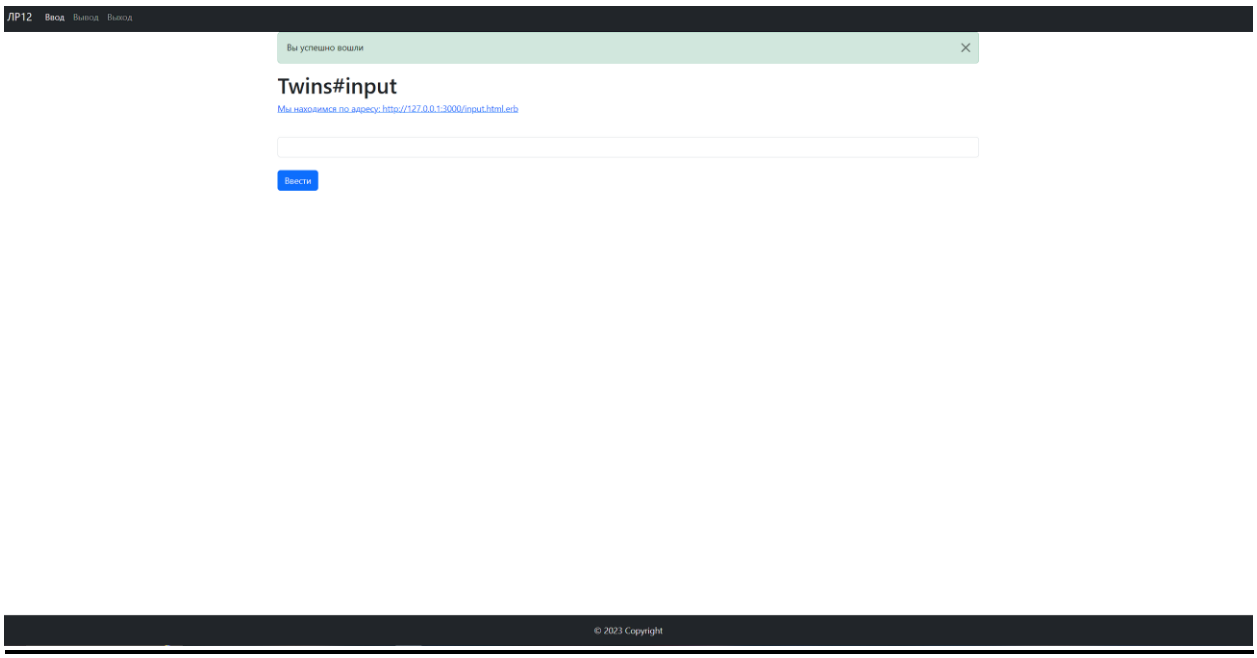


Рисунок 5 – успешный вход

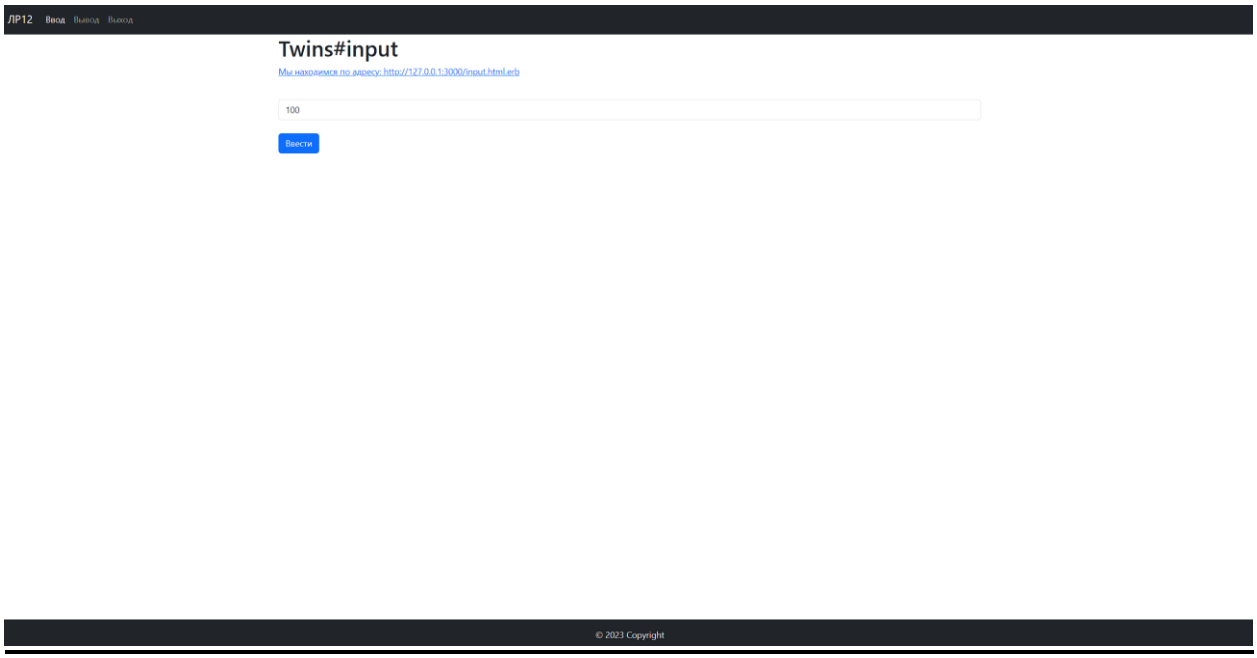


Рисунок 6 – ввод значения

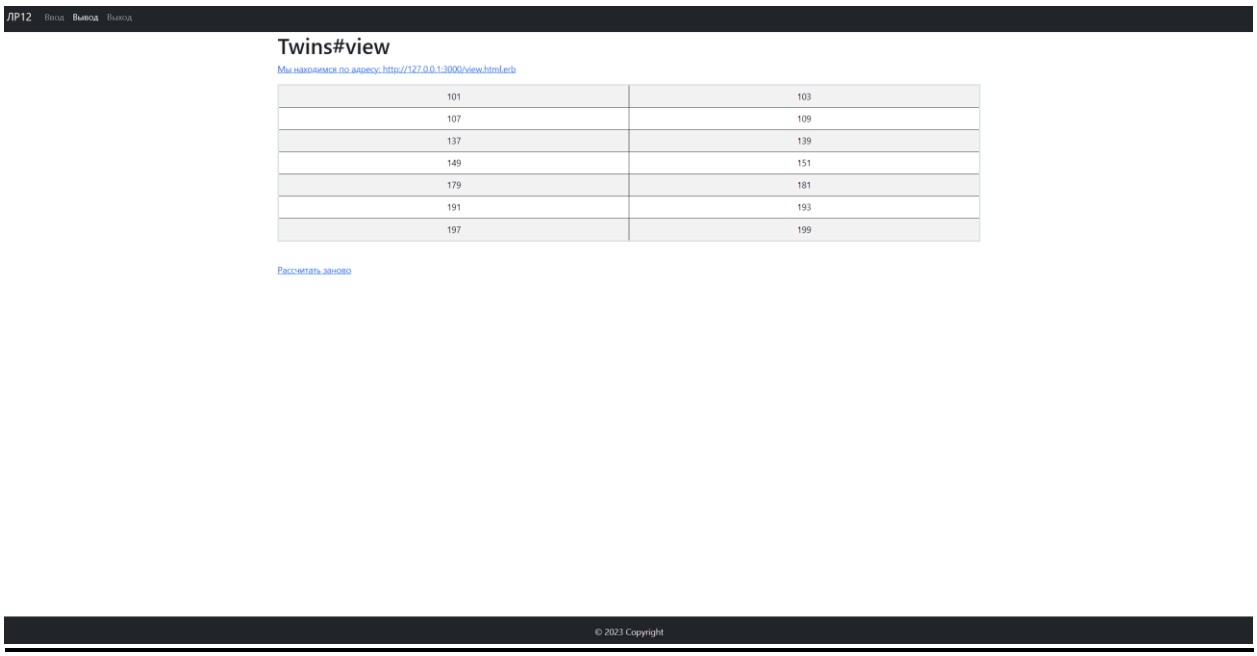


Рисунок 7 – вывод

```
# Running:

.123456
.123456
.123456
.123456
.123456
..
..

Finished in 5.158589s, 1.7447 runs/s, 4.8463 assertions/s.
9 runs, 25 assertions, 0 failures, 0 errors, 0 skips
```

Рисунок 8 – тесты

Распечатка БД:

results CREATE TABLE "results" ("id" integer PRIMARY KEY AUTOINCREMENT NOT NULL, "input" integer, "result" json, "created_at"

datetime(6) NOT NULL, "updated_at" datetime(6) NOT NULL); id integer PRIMARY KEY PRIMARY KEY AUTOINCREMENT

results CREATE TABLE "results" ("id" integer PRIMARY KEY AUTOINCREMENT NOT NULL, "input" integer, "result" json, "created_at" datetime(6) NOT NULL, "updated_at" datetime(6) NOT NULL); id integer NOT NULL NOT NULL

results CREATE TABLE "results" ("id" integer PRIMARY KEY AUTOINCREMENT NOT NULL, "input" integer, "result" json, "created_at" datetime(6) NOT NULL, "updated_at" datetime(6) NOT NULL); input integer

results CREATE TABLE "results" ("id" integer PRIMARY KEY AUTOINCREMENT NOT NULL, "input" integer, "result" json, "created_at" datetime(6) NOT NULL, "updated_at" datetime(6) NOT NULL); result json

results CREATE TABLE "results" ("id" integer PRIMARY KEY AUTOINCREMENT NOT NULL, "input" integer, "result" json, "created_at" datetime(6) NOT NULL, "updated_at" datetime(6) NOT NULL); created_at datetime NOT NULL NOT NULL

results CREATE TABLE "results" ("id" integer PRIMARY KEY AUTOINCREMENT NOT NULL, "input" integer, "result" json, "created_at" datetime(6) NOT NULL, "updated_at" datetime(6) NOT NULL); updated_at datetime NOT NULL NOT NULL

results CREATE TABLE "results" ("id" integer PRIMARY KEY AUTOINCREMENT NOT NULL, "input" integer, "result" json, "created_at" datetime(6) NOT NULL, "updated_at" datetime(6) NOT NULL);

1 0

results CREATE TABLE "results" ("id" integer PRIMARY KEY AUTOINCREMENT NOT NULL, "input" integer, "result" json, "created_at"

datetime(6) NOT NULL, "updated_at" datetime(6) NOT NULL);
10 1

results CREATE TABLE "results" ("id" integer PRIMARY KEY AUTOINCREMENT NOT NULL, "input" integer, "result" json, "created_at" datetime(6) NOT NULL, "updated_at" datetime(6) NOT NULL);
"{\"11\":13,\"17\":19}" 2

results CREATE TABLE "results" ("id" integer PRIMARY KEY AUTOINCREMENT NOT NULL, "input" integer, "result" json, "created_at" datetime(6) NOT NULL, "updated_at" datetime(6) NOT NULL);
2023-11-08 16:33:04.789709 3

results CREATE TABLE "results" ("id" integer PRIMARY KEY AUTOINCREMENT NOT NULL, "input" integer, "result" json, "created_at" datetime(6) NOT NULL, "updated_at" datetime(6) NOT NULL);
2023-11-08 16:33:04.789709 4

results CREATE TABLE "results" ("id" integer PRIMARY KEY AUTOINCREMENT NOT NULL, "input" integer, "result" json, "created_at" datetime(6) NOT NULL, "updated_at" datetime(6) NOT NULL);
2 0

results CREATE TABLE "results" ("id" integer PRIMARY KEY AUTOINCREMENT NOT NULL, "input" integer, "result" json, "created_at" datetime(6) NOT NULL, "updated_at" datetime(6) NOT NULL);
11 1

results CREATE TABLE "results" ("id" integer PRIMARY KEY AUTOINCREMENT NOT NULL, "input" integer, "result" json, "created_at" datetime(6) NOT NULL, "updated_at" datetime(6) NOT NULL);
"{\"11\":13,\"17\":19}" 2

results CREATE TABLE "results" ("id" integer PRIMARY KEY AUTOINCREMENT NOT NULL, "input" integer, "result" json, "created_at"

datetime(6) NOT NULL, "updated_at" datetime(6) NOT NULL);

2023-11-08 16:33:07.187956 3

results CREATE TABLE "results" ("id" integer PRIMARY KEY AUTOINCREMENT NOT NULL, "input" integer, "result" json, "created_at" datetime(6) NOT NULL, "updated_at" datetime(6) NOT NULL);

2023-11-08 16:33:07.187956 4

results CREATE TABLE "results" ("id" integer PRIMARY KEY AUTOINCREMENT NOT NULL, "input" integer, "result" json, "created_at" datetime(6) NOT NULL, "updated_at" datetime(6) NOT NULL);

3 0

results CREATE TABLE "results" ("id" integer PRIMARY KEY AUTOINCREMENT NOT NULL, "input" integer, "result" json, "created_at" datetime(6) NOT NULL, "updated_at" datetime(6) NOT NULL);

15 1

results CREATE TABLE "results" ("id" integer PRIMARY KEY AUTOINCREMENT NOT NULL, "input" integer, "result" json, "created_at" datetime(6) NOT NULL, "updated_at" datetime(6) NOT NULL);

"{\"17\":19}" 2

results CREATE TABLE "results" ("id" integer PRIMARY KEY AUTOINCREMENT NOT NULL, "input" integer, "result" json, "created_at" datetime(6) NOT NULL, "updated_at" datetime(6) NOT NULL);

2023-11-08 16:33:09.666411 3

results CREATE TABLE "results" ("id" integer PRIMARY KEY AUTOINCREMENT NOT NULL, "input" integer, "result" json, "created_at" datetime(6) NOT NULL, "updated_at" datetime(6) NOT NULL);

2023-11-08 16:33:09.666411 4

Вывод - Получили практические навыки в создании веб-приложений, использующих аутентификацию. Получили навыки написания интеграционных тестов приложений.