BD2 mini projekt - sklep internetowy

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Temat (tytuł) projektu: Sklep internetowy

Informacje o wykorzystywanym SZBD i technologii realizacji projektu

- baza danych: `MongoDB`
- backend: `Node.js` , `Express.js`
- frameworki\middleware dla backend'u: `mongoose` , `multer` , `cors`
- frontend: `React`

Link do repozytorium

Opis bazy danych

Baza ma implementować prosty sklep internetowy, w tym celu korzystamy z mongoDB.

Kolekcje

Poniżej został pokazane przykładowe dokumenty dla każdej z kolekcji.

Kolekcja users

```
{
    _id: 0,
    customerData: {
        firstName: "Jan",
        lastName: "Kowalski",
        phone: "123456789",
        address:{
            country: "Poland",
            postalCode: "12-345",
            region: "Śląsk",
            city: "Katowice",
            street: "Mariacka",
            buildingNumber: "9",
            apartmentNumber: ""
        }
    },
    login: "janekJanek",
    email: "janekJanek@gmail.com",
    password: hashedPassword,
    cartData: [
```

```
        {
            productId: 4,
            quantity: 8
        },
    ]
    orders: [{
        _id:0,
        date: new Date("2024-05-12"),
        paymentStatus: "confirmed",
        products: [
            {
                productId: 1,
                quantity: 5
            },
            {
                productId: 10,
                quantity: 1
            },
        ],
        totalPrice: 100
    }]
}
```

Kolekcja products

```
{
    _id: 10,
    name: "motorola moto g60",
    quantity: 15,
    price: 900.00,
    productDetails: {
        mainDescription: "Telefon jakich mało",
        paragraphDescription: "Dobra bateria, 128GB pamięci...",
    }
    imageUrl: "urlDoZdjęcia",
    available: true
}
```

Kolekcja salesHistory

```
{
    productId: 10,
    quantity: 5,
    date: new Date("2024-05-12"),
    price: 10.00
}
```

Charakterystyka bazy

Baza danych pozwala na łatwe odczytanie historii produktu oraz historii klienta kosztem pamięci jednego dokumentu.

Baza danych jest łatwa w modyfikowaniu i utrzymywaniu w przyszłości.

Modele

By zapewnić jednolitą postać danych w bazie danych, zaprojektowaliśmy modele, korzystając z biblioteki Mongoose.

ProductSchema (kolekcja products)

Skrócona wersja

```
name: `String`, required, unique
quantity: `Number`, required
price: `Number`, required
productDetails: required
    mainDescription: `String`, required, maxLength=100
    paragraphDescription: `String`, required, maxLength=100
imageUrl: `String`, required
available: `Boolean`, default=true
```

Pełen kod

```
const regularStringLength = 100;
const regularMessageStringLength = `Cannot be longer than ${regularStringLength}
characters`;

const ProductSchema = new mongoose.Schema({
  name: {
    type: String,
    required: true,
    unique: true,
    maxLength: [regularStringLength, regularMessageStringLength],
  },
  quantity: {
    type: Number,
    required: true,
    validate: {
      validator: function (quantity) {
        return Number.isInteger(quantity) && quantity >= 0;
      },
      message: (props) =>
        `${props.value} quantity should be positive and have Integer value`,
    },
  },
```

```
  price: {
    type: Number,
    required: true,
    validate: [
      {
        validator: function (price) {
          return price > 0;
        },
        message: (props) =>
          `${props.value} is less than 0! Price should be positive`,
      },
      {
        validator: function (price) {
          return Number(price.toFixed(2)) === price;
        },
        message: (props) =>
          `${props.value} has more than 2 decimal places! Price should have at
most 2 decimal places`,
      },
    ],
  },
  productDetails: {
    type: {
      mainDescription: {
        type: String,
        required: true,
        maxLength: [regularStringLength, regularMessageStringLength],
      },
      paragraphDescription: {
        type: String,
        required: true,
        maxLength: [regularStringLength, regularMessageStringLength],
      },
    },
    required: true,
  },
  imageUrl: { type: String, required: true },
  available: { type: Boolean, default: true },
});
```

UserSchema (kolekcja users)

Skrócona wersja

```
customerData:
    firstName: `String`, maxLength=50
    lastName: `String`, maxLength=50
    phone: `String`
    address:
        country: `String`, maxLength=50
        postalCode: `String`, maxLength=50
```

```
        region: `String`, maxLength=50
        city: `String`, maxLength=50
        street: `String`, maxLength=50
        buildingNumber: `String`, maxLength=50
        apartmentNumber: `String`, maxLength=50
login: `String`, required, unique
email: `String`, required, unique
password: `String`, required
[cartData]: default=[]
  productId: `ObjectId`, required
  quantity: `Number`, required, min=1
[orders]: default=[]
  date: `Date`, required, default=Date.now()
    paymentStatus: `String`, required, enum=['Paid', 'Pending', 'Failed']
    products: required
      productId: `ObjectId`, required
    quantity: `Number`, required, min=1
  totalPrice: `Number`
```

Pełen kod

```
const regularStringLength = 50;
const regularMessageStringLength = `cannot be longer than ${regularStringLength}
characters`;

const AddressSchema = new Schema({
  country: {
    type: String,
    maxlength: [regularStringLength, `country ${regularMessageStringLength}`],
  },
  postalCode: {
    type: String,
    maxlength: [
      regularStringLength,
      `postalCode ${regularMessageStringLength}`,
    ],
  },
  region: {
    type: String,
    maxlength: [regularStringLength, `region ${regularMessageStringLength}`],
  },
  city: {
    type: String,
    maxlength: [regularStringLength, `region ${regularMessageStringLength}`],
  },
  street: {
    type: String,
    maxlength: [regularStringLength, `region ${regularMessageStringLength}`],
  },
  buildingNumber: {
    type: String,
```

```
    maxlength: [regularStringLength, `region ${regularMessageStringLength}`],
  },
  apartmentNumber: {
    type: String,
    maxlength: [regularStringLength, `region ${regularMessageStringLength}`],
  }, //nullable
});

const CustomerDataSchema = new Schema({
  firstName: {
    type: String,
    maxlength: [regularStringLength, `firstName ${regularMessageStringLength}`],
  },
  lastName: {
    type: String,
    maxlength: [regularStringLength, `lastName ${regularMessageStringLength}`],
  },
  phone: { type: String, validate: /^\+(?:[0-9] ?){6,14}[0-9]$/ },
  address: {
    type: AddressSchema,
  },
});

const CartItemSchema = new Schema({
  productId: {
    type: ObjectId,
    ref: "Products",
    required: true,
  },
  quantity: {
    type: Number,
    min: 1,
    validate: {
      validator: Number.isInteger,
      message: (props) => `${props.value} is not an integer value`,
    },
    required: true,
  },
});

// for one order
const OrderSchema = new Schema({
  date: {
    type: Date,
    default: Date.now(),
    required: true,
  },
  paymentStatus: {
    type: String,
    required: true,
    enum: ["Paid", "Pending", "Failed"],
  },
  products: {
    type: [CartItemSchema],
```

```
    required: true,
    validate: {
      validator: function (products) {
        return products.length > 0;
      },
      message: (props) => `Order should have at least one product`,
    },
  },
  totalPrice: {
    type: Number,
    validate: [
      {
        validator: function (price) {
          return price > 0;
        },
        message: (props) =>
          `${props.value} is less than 0! TotalPrice should be positive`,
      },
      {
        validator: function (price) {
          return Number(price.toFixed(2)) === price;
        },
        message: (props) =>
          `${props.value} has more than 2 decimal places! TotalPrice should have
at most 2 decimal places`,
      },
    ],
  },
});

// main schema
const UserSchema = new Schema({
  customerData: { type: CustomerDataSchema },
  login: {
    type: String,
    required: true,
    unique: true,
    validate: /^[a-zA-Z0-9]{5,}$/,
  },
  email: {
    type: String,
    required: true,
    unique: true,
    validate: /^[a-zA-Z0-9._%+-]+@[a-zA-Z0-9.-]+\.[a-zA-Z]{2,}$/,
  },
  password: { type: String, required: true },
  cartData: { type: [CartItemSchema], default: [] }, //domyślnie pusta lista
obiektow
  orders: { type: [OrderSchema], default: [] }, // domyślnie pusta lista
});

const User = mongoose.model("User", UserSchema);
```

SalesHistorySchema (kolekcja salesHistory)

Skrócona wersja

```
productId: `ObjectId`, required
quantity: `Number`, required, default=1
date: `Date`, required, default=Date.now(), index
price: `Number`, required
userID: `ObjectId`, required
```

Pełen kod

```
const ProductSalesHistory = mongoose.model("ProductSalesHistory", {
  productId: {
    type: ObjectId,
    ref: "Product",
    required: true,
  },
  quantity: {
    type: Number,
    default: 1,
    required: true,
    validate: {
      validator: function (v) {
        return v >= 1 && Number.isInteger(v);
      },
      message: (props) =>
        `${props.value} is not a valid quantity! Quantity should be greater than
or equal to 1 and have Integer value.`,
    },
  },
  date: {
    type: Date,
    default: Date.now,
    required: true,
    index: true,
  },
  price: {
    type: Number,
    required: true,
    validate: [
      {
        validator: function (price) {
          return price > 0;
        },
        message: (props) =>
          `${props.value} is less than 0! Price should be positive`,
      },
      {
```

```
        validator: function (price) {
          return Number(price.toFixed(2)) === price;
        },
        message: (props) =>
          `${props.value} has more than 2 decimal places! Price should have at
most 2 decimal places`,
      },
    ],
  },
  userId: {
    type: ObjectId,
    ref: "User",
    required: true,
  },
});
```

Walidacja

Wszędzie gdzie było to potrzebne, wyposażaliśmy modele w funkcje walidujące dane. W przypadku email, phone, year, month sprawdzały one dodatkowo zgodność z ustalonymi wyrażeniami regularnymi

Endpointy

Endpointy koszyka

Każda metoda opisana poniżej korzysta z middleware findUser, który weryfikuje czy użytkownik istnieje i czy podany przez niego token jest poprawny.

/cart/own

Opis

Zwraca koszyk klienta.

Metoda HTTP `GET`

Parametry

- _id `ObjectId`
- *optional* projection `Projection`

Wartość zwracana

```
{
  success: true,
  cartData: CartItemSchema[],
  totalPrice: number
}
```

Parametry zwracane w cartData są zależna od projection. Pełny typ `CartItemSchema` jest zwracany gdy projection nie zostanie podane.

Zwracanie błędu

```
{
  success: false,
  message: string,
  errors: string
}
```

Implementacja

```
router.get("/own", findUser, async (req, res) => {
  try {
    const cartProjection = req.body.cartProjection || {};
    const userData = await User.findOne(
      { _id: req.user._id },
      { _id: 1, cartData: 1 }
    );

    const cartData = [];
    for (let item of userData.cartData) {
      const dbProduct = await Product.findOne(
        { _id: item.productId },
        cartProjection
      );
      cartData.push({
        productId: item.productId,
        quantity: item.quantity,
        productData: dbProduct,
      });
    }

    res.json({
      success: true,
      cartData: cartData,
    });
  } catch (err) {
    res.status(500).json({
      success: false,
      message: "Error fetching user data from db",
      errors: err,
    });
  }
});
```

/cart/updateone

Opis

Zmienia dane jednego produktu w koszyku użytkownika.

Metoda HTTP `POST`

Parametry

- _id `ObjectId`
- cartProductData `CartItemSchema`

Wartość zwracana

```
{
  success: true,
  message: string,
  newCart: {
    type: [CartItemSchema],
    default: []
  },
  oldCart: {
    type: [CartItemSchema],
    default: []
  }
}
```

Zwracanie błędu

```
{
  success: false,
  message: string,
  errors: string
}
```

Implementacja

```
router.post("/updateone", findUser, async (req, res) => {
  const cartProductData = req.body.cartProductData;
  const userData = req.user;
  if (!cartProductData) {
    return res.status(400).json({
      success: false,
      message: "No cartProductData provided",
      errors: "No cartProductData provided via body",
```

```
    });
  }
  if (
    !cartProductData.hasOwnProperty("productId") ||
    !cartProductData.hasOwnProperty("quantity")
  ) {
    return res.status(400).json({
      success: false,
      message: "Mising parameter in cartProductData",
      errors:
        "Parameter 'productId' or 'quantity' not found in cartProductData (body
object)",
    });
  }
  if (cartProductData.quantity < 0) {
    return res.status(400).json({
      success: false,
      message: "Bad quantity value",
      errors: "Quantity of product in cart is less than 0",
    });
  }

  try {
    const dbUser = await User.findOne({ _id: userData._id }, { cartData: 1 });
    const oldCart = JSON.parse(JSON.stringify(dbUser.cartData)); // 200 iq deep
copy

    if (cartProductData.quantity === 0) {
      // Jeśli produkt ma być usunięty z koszyka

      dbUser.cartData = dbUser.cartData.filter(
        (item) => item.productId.toString() !== cartProductData.productId
      );
    } else {
      //normalna modyfikacja koszyka

      // znajdz produkt w koszyku
      let cartItem = dbUser.cartData.find(
        (item) => item.productId.toString() === cartProductData.productId
      );

      if (cartItem) {
        // Jeśli produkt jest już w koszyku, zaktualizuj ilość
        cartItem.quantity = cartProductData.quantity;
      } else {
        // Jeśli produktu nie ma w koszyku, dodaj go
        cartItem = {
          productId: cartProductData.productId,
          quantity: cartProductData.quantity,
        };
        dbUser.cartData.push(cartItem);
      }

      // sprawdzenie czy produkt mozna kupic w takiej ilosci, i czy jest dostepny
```

```
      const dbProduct = await Product.findOne(
        { _id: cartProductData.productId },
        { quantity: 1, available: 1 }
      );

      if (!(cartItem.quantity <= dbProduct.quantity) || !dbProduct.available) {
        return res.status(400).json({
          success: false,
          message:
            "Bad quantity value. Quantity of product in cart is bigger than
available in DB. Or product is not available",
          errors: `dbProduct.quantity ${dbProduct.quantity} < ${cartItem.quantity}
, dbProduct.available ${dbProduct.available}`,
        });
      }
    }
    // finally
    dbUser.save();
    return res.json({
      success: true,
      message: "Cart updated",
      newCart: dbUser.cartData,
      oldCart: oldCart,
    });
  } catch (err) {
    res.status(500).json({
      success: false,
      message: "Server error probably DB error or bad quantity value",
      errors: err,
    });
  }
});
```

/cart/sell

Opis

Sprzedaje produkty użytkownikowi z jego koszyka.

Aby zachować synchroniczność dostępu do danych używamy mutexa weryfikacyjnego.

Metoda HTTP `POST`

Parametry

- _id `ObjectId`

Wartość zwracana

```
{
  success: true,
  message: string,
  totalPrice: number
}
```

Zwracanie błędu

```
{
  success: false,
  message: string,
  errors: string,
  newCart: {
    type: [CartItemSchema],
    default: []
  },
  oldCart: {
    type: [CartItemSchema],
    default: []
  }
}
```

Implementacja

```
router.post("/sell", findUser, async (req, res) => {
  const reqUserData = req.user;
  const release = await verificationMutex.acquire(); //przyblokowanie innych
instancji

  const session = await mongoose.startSession();
  session.startTransaction();

  try {
    const dbUser = await User.findOne({ _id: reqUserData._id });
    {
      // verification of cart block
      const { fixedCart, cartError } = await verifyCart(dbUser.cartData);

      if (cartError === true) {
        const oldCart = JSON.parse(JSON.stringify(dbUser.cartData)); // 200 iq
deep copy
        dbUser.cartData = fixedCart;
        await dbUser.save({ session });

        release();
        return res.status(400).json({
          success: false,
```

```
            message: "Cart verification failed, cart has been fixed",
            errors: "Cart verification failed",
            cartFixed: true,
            newCart: dbUser.cartData,
            oldCart: oldCart,
          });
        }
      }

      // cart verification passed, selling... //TODO add dummy payment ?
      let totalPrice = 0;

      async function updateDbItems() {
        for (let item of dbUser.cartData) {
          const dbProduct = await Product.findOne({ _id: item.productId });
          dbProduct.quantity -= item.quantity;
          totalPrice += item.quantity * dbProduct.price;
          dbProduct.save({ session });

          // create product history
          new ProductSalesHistory({
            productId: item.productId,
            quantity: item.quantity,
            price: dbProduct.price,
            userId: dbUser._id,
          }).save({ session });
        }
      }

      await updateDbItems();

      totalPrice = Number(totalPrice.toFixed(2));

      dbUser.orders.push({
        paymentStatus: "Paid",
        products: dbUser.cartData,
        totalPrice: totalPrice,
      });

      dbUser.cartData = [];
      await dbUser.save({ session });

      await session.commitTransaction();
      await session.endSession();

      res.json({
        success: true,
        message: "Products sold",
        totalPrice: totalPrice,
      });
    } catch (err) {
      await session.abortTransaction();
      await session.endSession();
      res.status(500).json({
```

```
        success: false,
        message: "Server error probably DB error",
        errors: err,
      });
    } finally {
      release(); // mutex release
    }
  });
```

Endpointy produktu

/products/list

Opis

Zwraca wszystkie produkty.

Metoda HTTP `GET`

Parametry

- _id `ObjectId`

Wartość zwracana

```
{
  success: true,
  products: CartItemSchema[]
}
```

Zwracanie błędu

```
{
  success: false,
  message: string,
  errors: string
}
```

Implementacja

```
router.get("/list", async (req, res) => {
  const projection = req.body.projection || {};
  const filter = req.body.filter || {};
  try {
```

```
    const products = await Product.find(filter, projection);

    return res.json({
      success: true,
      products: products,
    });
  } catch (err) {
    return res.status(500).json({
      success: false,
      message: "Failed to query from db:" + err.message,
      errors: err,
    });
  }
});
```

/products/available

Opis

Zwraca wszystkie dostępne produkty.

Metoda HTTP `GET`

Parametry

- _id `ObjectId`

Wartość zwracana

```
{
  success: true,
  products: CartItemSchema[]
}
```

Zwracanie błędu

```
{
  success: false,
  message: string,
  errors: string
}
```

Implementacja

```
router.get("/available", async (req, res) => {
  const projection = req.body.projection || {};
  try {
    const products = await Product.find(
      { available: true, quantity: { $gt: 0 } },
      projection
    );
    return res.json({
      success: true,
      products: products,
    });
  } catch (err) {
    return res.status(500).json({
      success: false,
      message: "Failed to query from db:" + err.message,
      errors: err,
    });
  }
});
```

/products/add

Opis

Dodaje nowy produkt.

Przed wykonaniem sprawdzamy przy pomocy middlewaru validateBodyJsonSchema czy dane nowego produktu są poprawne.

Metoda HTTP `POST`

Parametry

- _id `ObjectId`
- newProduct `productSchema`

Wartość zwracana

```
{
  success: true,
  message: string,
  name: string
}
```

Zwracanie błędu

```
{
  success: false,
  message: string,
  errors: string
}
```

Implementacja

```
router.post(
  "/add",
  validateBodyJsonSchema("newProduct", Product),
  async (req, res) => {
    const reqProduct = req.body.newProduct;
    try {
      const isAlreadyInDB = await Product.findOne({ name: reqProduct.name });
      if (isAlreadyInDB) {
        return res.status(409).json({
          success: false,
          message: "Product already in DB with that name",
          errors: `When trying to add ${reqProduct} found already ${isAlreadyInDB}
in DB`,
        });
      }

      const product = new Product(reqProduct);
      await product.save();
      return res.json({
        success: true,
        message: "Product saved",
        name: req.body.name,
      });
    } catch (err) {
      return res.status(500).json({
        success: false,
        message: "Failed to save to db",
        errors: err,
      });
    }
  }
);
```

/products/get/:id

Opis

Dodaje nowy produkt.

Przed wykonaniem sprawdzamy przy pomocy middlewaru validateBodyJsonSchema czy dane nowego produktu są poprawne.

Metoda HTTP `GET`

Parametry

- _id `ObjectId`
- *optional* projection `Projection`

Wartość zwracana

```
{
  success: true,
  message: string,
  product: {
    _id: ObjectId,
    name: string,
    quantity: number,
    price: number,
    productDetails: {
      mainDescription: string,
      paragraphDescription: string,
    },
    imageUrl: string,
    available: boolean,
  }
}
```

Wartość zwracana jest zależna od projection. Powyżej znajdują się dane otrzymane gdy projection nie zostanie podane.

Zwracanie błędu

```
{
  success: false,
  message: string,
  errors: string
}
```

Implementacja

```
router.get("/get/:id", async (req, res) => {
  const projection = req.body.projection || {};
  const id = req.params.id;
```

```
  try {
    const product = await Product.findOne({ _id: id }, projection);

    if (!product) {
      res.status(404).json({
        success: false,
        message: "Product not found in DB",
        errors: "Product with that _id not found in DB",
      });
    }

    return res.json({
      success: true,
      message: "Product found",
      product: product,
    });
  } catch (err) {
    return res.status(500).json({
      success: false,
      message: "Failed to query from db, db not working or bad projection",
      errors: err,
    });
  }
});
```

Endpointy użytkownika

/users/list

Opis

Zwraca wszystkich użytkowników.

Metoda HTTP `GET`

Parametry

- *optional* projection `Projection`
- *optional* filter `Filter`

Wartość zwracana

```
{
  success: true,
  products: [
    {
      _id: ObjectId,
      customerData: {
        firstName: string,
        lastName: string,
```

```
        phone: string,
        address: {
          country: string,
          postalCode: string,
          region: string,
          city: string,
          street: string,
          buildingNumber: string,
          apartmentNumber: string
        }
      },
      login: string,
      email: string,
      password: encodedPassword,
      cartData: {
        productId: number
        quantity: number
      }
      orders: {
        _id: ObjectId,
        date: Date,
        paymentStatus: string,
        products: [
          {
            productId: number,
            quantity: number
          },
          {
            productId: number,
            quantity: number
          },
        ],
        totalPrice: number
      }
    }
  ]
}
```

Wartość zwracana jest zależna od projection. Powyżej znajdują się dane otrzymane gdy projection nie zostanie podane.

Zwracanie błędu

```
{
  success: false,
  message: string,
  errors: string
}
```

Implementacja

```
router.get("/list", async (req, res) => {
  const projection = req.body.projection || {};
  const filter = req.body.filter || {};

  try {
    const fetchedUsers = await User.find(filter, projection);
    res.json(fetchedUsers);
  } catch (err) {
    res.status(500).json({
      success: false,
      message: "Failed to query from db:" + err.message,
      errors: err,
    });
  }
});
```

/users/add

Opis

Dodaje nowego użytkownika.

Metoda HTTP `POST`

Parametry

- user `UserSchema`

Wartość zwracana

```
{
  success: true,
  message: string,
  user: {
    _id: ObjectId,
    customerData: {
      firstName: string,
      lastName: string,
      phone: string,
      address: {
        country: string,
        postalCode: string,
        region: string,
        city: string,
        street: string,
        buildingNumber: string,
```

```
        apartmentNumber: string
      }
    },
    login: string,
    email: string,
    password: encodedPassword,
    cartData: {
      productId: number
      quantity: number
    }
    orders: {
      _id: ObjectId,
      date: Date,
      paymentStatus: string,
      products: [
        {
          productId: number,
          quantity: number
        },
        {
          productId: number,
          quantity: number
        },
      ],
      totalPrice: number
    }
  }
}
```

Zwracanie błędu

```
{
  success: false,
  message: string,
  errors: string
}
```

Implementacja

```
router.post("/add", async (req, res) => {
  try {
    const userData = req.body.user; //as in schema
    const result = await addNewUser(userData);
    if (result.success === true) {
      return res.json(result);
    } else {
      return res.status(400).json(result);
    }
```

```
    } catch (err) {
      return res.status(500).json({
        success: false,
        message: "Failed to add user" + err.message,
        errors: err,
      });
    }
  });
```

/users/signup

Opis

Rejestruje nowego użytkownika.

Metoda HTTP `POST`

Parametry

- user `UserSchema`

Wartość zwracana

```
{
  success: true,
  token: token,
  user: {
    _id: ObjectId,
    login: string,
    email: string
  }
}
```

Zwracanie błędu

```
{
  success: false,
  message: string,
  errors: string
}
```

Implementacja

```
router.post("/signup", async (req, res) => {
  try {
    const userData = req.body.user; //as in schema
    const addUserResult = await addNewUser(userData);
    if (addUserResult.success === false) {
      return res.status(400).json(addUserResult);
    }
    const user = addUserResult.user;

    const token = getUserToken(user);
    return res.json({
      success: true,
      token: token,
      user: {
        _id: user._id,
        login: user.login,
        email: user.email,
      },
    });
  } catch (err) {
    return res.status(500).json({
      success: false,
      message: "Failed to sign up user" + err.message,
      errors: err,
    });
  }
});
```

/users/login

Opis

Loguje użytkownika.

Metoda HTTP `POST`

Parametry

- user `UserSchema`

Wartość zwracana

```
{
  success: true,
  token: token,
  user: {
    _id: ObjectId,
    login: string,
    email: string
```

```
  }
}
```

Zwracanie błędu

```
{
  success: false,
  message: string,
  errors: string
}
```

Implementacja

```
router.post("/login", async (req, res) => {
  try {
    const userData = req.body.user; //as in schema

    let dbUser = undefined;
    if (userData.login) {
      dbUser = await User.findOne(
        { login: userData.login },
        { login: 1, email: 1, password: 1 }
      );
    } else if (userData.email) {
      dbUser = await User.findOne(
        { email: userData.email },
        { login: 1, email: 1, password: 1 }
      );
    }

    if (!dbUser) {
      return res.status(400).json({
        success: false,
        message: `${
          userData.login
            ? "User with that login does not exist"
            : "User with that email does not exist"
        }`,
        errors: "User does not exist",
      });
    }

    // const passwordCompare = dbUser.password === userData.password
    const passwordCompare = await bcrypt.compare(
      userData.password,
      dbUser.password
    );
```

```
    if (passwordCompare) {
      const token = getUserToken(dbUser);
      res.json({
        success: true,
        token: token,
        user: {
          _id: dbUser._id,
          login: dbUser.login,
          email: dbUser.email,
        },
      });
    } else {
      res.status(400).json({
        success: false,
        message: "Invalid password",
        errors: "Invalid password",
      });
    }
  } catch (err) {
    res.status(500).json({
      success: false,
      message: "Failed to log in user" + err.message,
      errors: err,
    });
  }
});
```

Endpointy historii sprzedaży

/salesHistory/get/:id

Opis

Zwraca historię sprzedaży konkretnego produktu.

Metoda HTTP `GET`

Parametry

- *optional* salesProjection `Projection`
- *optional* salesFilter `Filter`
- *optional* productProjection `Projection`

Wartość zwracana

```
{
  success: true,
  message: string,
  products: CartItemSchema,
```

```
  salesHistory: SalesHistorySchema[]
}
```

Wartość zwracana jest zależna od projection. Powyżej znajdują się dane otrzymane gdy projection nie zostanie podane.

Zwracanie błędu

```
{
  success: false,
  message: string,
  errors: string
}
```

Implementacja

```
router.get("/get/:id", async (req, res) => {
  const salesProjection = req.body.salesProjection || {};
  const salesFilter = req.body.salesFilter || {};
  const productProjection = req.body.productProjection || {};

  const id = req.params.id;

  try {
    const dbProduct = await Product.findOne({ _id: id }, productProjection);

    if (!dbProduct) {
      return res.status(404).json({
        success: false,
        message: "Product not found in DB",
        errors: "Product with that _id not found in DB",
      });
    }

    const dbSalesHistory = await ProductSalesHistory.find(
      { productId: id, ...salesFilter },
      salesProjection
    );
    return res.json({
      success: true,
      message: "Product and sales history found",
      product: dbProduct,
      salesHistory: dbSalesHistory,
    });
  } catch (err) {
    return res.status(500).json({
      success: false,
```

```
      message: "Failed to query from db, db not working or bad projection",
      errors: err,
    });
  }
});
```

/totalEarned/:id

Opis

Zwraca łączną zarobioną kwotę przez konkretny produkt.

Metoda HTTP GET

Wartość zwracana

```
{
  success: true,
  message: string,
  totalEarned: number
}
```

Zwracanie błędu

```
{
  success: false,
  message: string,
  errors: string
}
```

Implementacja

```
router.get("/totalEarned/:id", async (req, res) => {
  const id = req.params.id;

  try {
    const dbSalesHistory = await ProductSalesHistory.find({ productId: id });
    let totalEarned = 0;
    dbSalesHistory.forEach((sale) => {
      totalEarned += sale.price * sale.quantity;
    });

    totalEarned = Number(totalEarned.toFixed(2));
    return res.json({
      success: true,
```

```
      message: "Total earned for product",
      totalEarned: totalEarned,
    });
  } catch (err) {
    return res.status(500).json({
      success: false,
      message: "Failed to query from db.",
      errors: err,
    });
  }
});
```

Metody pomocnicze

addNewUser

Opis

Dodaje użytkownika do bazy.

Parametry

- userData `UserSchema`

Wartość zwracana

```
{
  success: true,
  message: string,
  user: {
    _id: ObjectId,
    customerData: {
      firstName: string,
      lastName: string,
      phone: string,
      address: {
        country: string,
        postalCode: string,
        region: string,
        city: string,
        street: string,
        buildingNumber: string,
        apartmentNumber: string
      }
    },
    login: string,
    email: string,
    password: encodedPassword,
    cartData: {
      productId: number
```

```
      quantity: number
    }
    orders: {
      _id: ObjectId,
      date: Date,
      paymentStatus: string,
      products: [
        {
          productId: number,
          quantity: number
        },
        {
          productId: number,
          quantity: number
        },
      ],
      totalPrice: number
    }
  }
}
```

Zwracanie błędu

```
{
  success: false,
  message: string,
  errors: string
}
```

Implementacja

```
async function addNewUser(userData) {
  let isUserExist;
  try {
    isUserExist = await User.findOne({ email: userData.email }, { login: 1 });
  } catch (err) {
    return {
      success: false,
      message: "Failed to query from db to check if user exist" + err.message,
      errors: err,
    };
  }

  if (isUserExist) {
    return {
      success: false,
      message: "User with that email already exists",
      errors: "User already exists",
```

```
      };
    }
    try {
      // Hash the password
      const salt = await bcrypt.genSalt(10);
      // Replace the plain text password with the hashed password
      userData.password = await bcrypt.hash(userData.password, salt);

      const user = new User(userData);
      const savedUser = await user.save();
      return {
        success: true,
        message: "User has been created",
        user: savedUser,
      };
    } catch (err) {
      return {
        success: false,
        message:
          "Failed to create or add user, bad data provided probably " +
          err.message,
        errors: err,
      };
    }
  }
```

getUserToken

Opis

Generuje token użytkownikowi.

Parametry

- user `UserSchema`

Wartość zwracana

`string`

Implementacja

```
  function getUserToken(user) {
    const jwt_data = {
      //data for jwt (json web token)
      user: { _id: user._id },
    };
    return jwt.sign(jwt_data, userEncodePass);
  }
```

getUserByToken

Opis

Zwraca użytkownika na podstawie tokenu.

Parametry

- token `string`

Wartość zwracana

```
{
  _id: ObjectId,
  customerData: {
    firstName: string,
    lastName: string,
    phone: string,
    address: {
      country: string,
      postalCode: string,
      region: string,
      city: string,
      street: string,
      buildingNumber: string,
      apartmentNumber: string
    }
  },
  login: string,
  email: string,
  password: encodedPassword,
  cartData: {
    productId: number
    quantity: number
  }
  orders: {
    _id: ObjectId,
    date: Date,
    paymentStatus: string,
    products: [
      {
        productId: number,
        quantity: number
      },
      {
        productId: number,
        quantity: number
      },
    ],
    totalPrice: number
```

```
  }
}
```

Implementacja

```
function getUserByToken(token) {
  const decoded = jwt.verify(token, userEncodePass);
  return decoded.user;
}
```

findUser

Opis

Sprawdza czy użytkownik istnieje w bazie i czy jego token jest poprawny.

Parametry

- req `Request`
- res `Response`
- next `Function`

Wartość zwracana

`undefined`

Zwracanie błędu

```
{
  success: false,
  message: string,
  errors: string
}
```

Implementacja

```
export const findUser = async (req, res, next) => {
  const reqUser = req.body.user;
  if (reqUser && reqUser._id) {
    // by passing user auth
    if (!User.exists({ _id: reqUser._id })) {
      return res.status(404).json({
        success: false,
        message: "That user does not exist in db",
```

```
          errors: `User with provided _id: ${reqUser._id} does not exist in db`,
        });
      } else {
        return next();
      }
    }

    const token = req.header("user-auth-token");
    if (!token) {
      return res.status(401).json({
        success: false,
        errors: "No token found, authorization denied",
        message: "Authenticate using a valid token",
      });
    }

    try {
      const user = getUserByToken(token);

      if (!User.exists({ _id: user._id })) {
        res.status(404).json({
          success: false,
          message: "That user does not exist in db",
          errors: `User with provided _id: ${user._id} does not exist in db`,
        });
      }

      // req.user = getUserByToken(token)
      req.user = user;
      next();
    } catch (err) {
      res.status(400).json({
        success: false,
        errors: err,
        message: "Provided token is not valid",
      });
    }
  };
```

verifyCart

Opis

Sprawdza czy koszyk jest poprawny.

Parametry

- cartData `CartItemSchema[]`

Wartość zwracana

```
{
  fixedCart: [
    {
      productId: number,
      quantity: number
    }
  ],
  cartError: false
}
```

Zwracanie błędu

```
{
  fixedCart: [
    {
      productId: number,
      quantity: number
    }
  ],
  cartError: true
}
```

Implementacja

```
async function verifyCart(cartData) {
  const fixedCart = [];
  let cartError = false;

  for (let item of cartData) {
    const dbProduct = await Product.findOne({ _id: item.productId });
    if (dbProduct.available === false) {
      // remove from cart
      cartError = true;
      continue;
    }

    if (dbProduct.quantity < item.quantity) {
      // fix quantity
      cartError = true;
      item.quantity = dbProduct.quantity;
      fixedCart.push(item);
    } else {
      // normal
      fixedCart.push(item);
    }
  }
  return {
```

```
    fixedCart: fixedCart,
    cartError: cartError,
  };
}
```

validateBodyJsonSchema

Opis

Middleware który sprawdza czy request.body posiada daną strukturę.

Parametry

- bodyFieldName `string`
- schema `Function`

Wartość zwracana

`undefined`

Zwracanie błędu

```
{
  success: false,
  message: string,
  errors: string
}
```

Implementacja

```
const validateBodyJsonSchema = (bodyFieldName, schema) => {
  return (req, res, next) => {
    if (!req.body.hasOwnProperty(bodyFieldName)) {
      return res.status(400).json({
        success: false,
        message: "Missing required field in JSON body",
        errors: `Missing required field: ${bodyFieldName}`,
      });
    }

    try {
      const isValid = new schema(req.body[bodyFieldName]);
    } catch (error) {
      return res.status(400).json({
        success: false,
        message: "Invalid given JSON structure",
        errors: error,
```

```
        });
      }
      next();
    };
  };
```

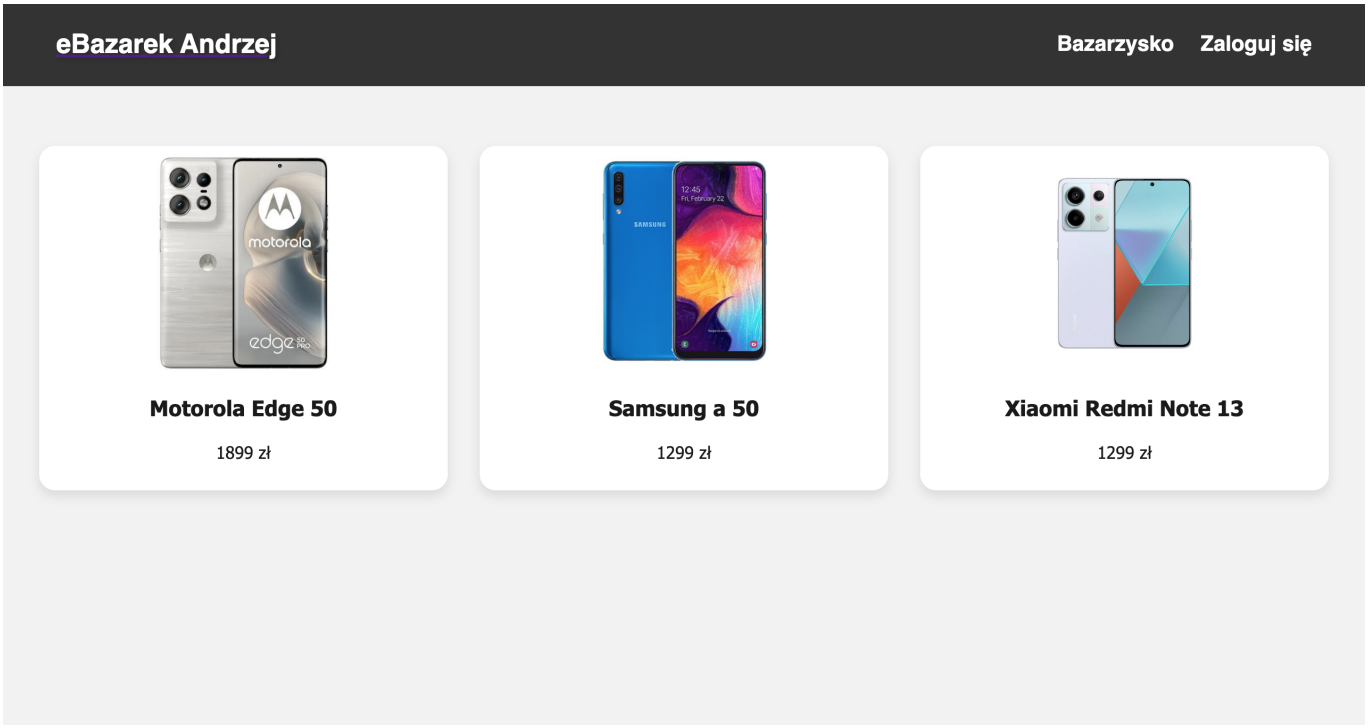
Frontend

Przy pomocy biblioteki React stworzyliśmy dwie strony internetowe- jedną dla uzytkownika, która pobiera dane z endpointów i umożliwia:

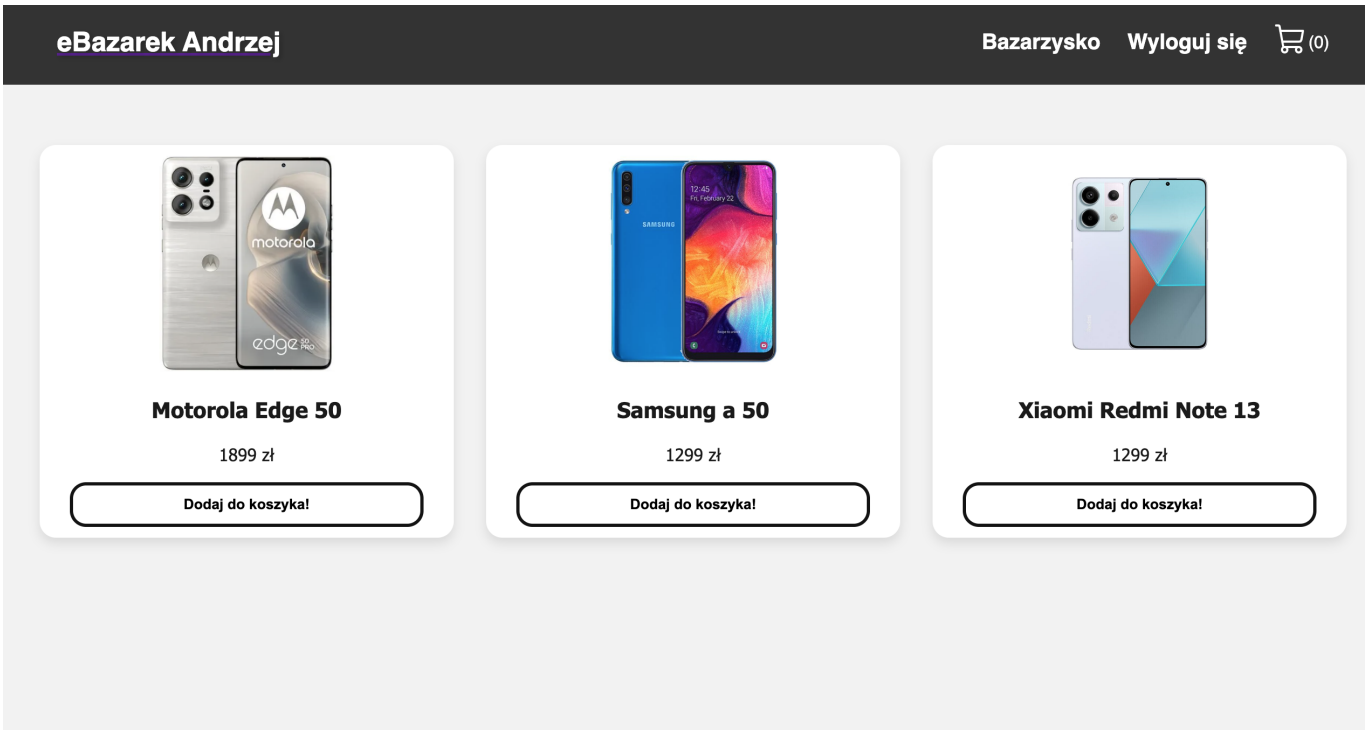
- rejestrację i logowanie się
- przeglądanie produktów
- dodawanie i usuwanie produktów z koszyka (po zalogowaniu)
- symboliczny zakup produktów z koszyka Oraz drugą dla administratora, za pomocą której mozna:
- sprawdzać bazę użytkowników
- dodawanie oraz usuwanie produktów
- sprawdzanie historii produktu

Sklep internetowy- zdjęcia

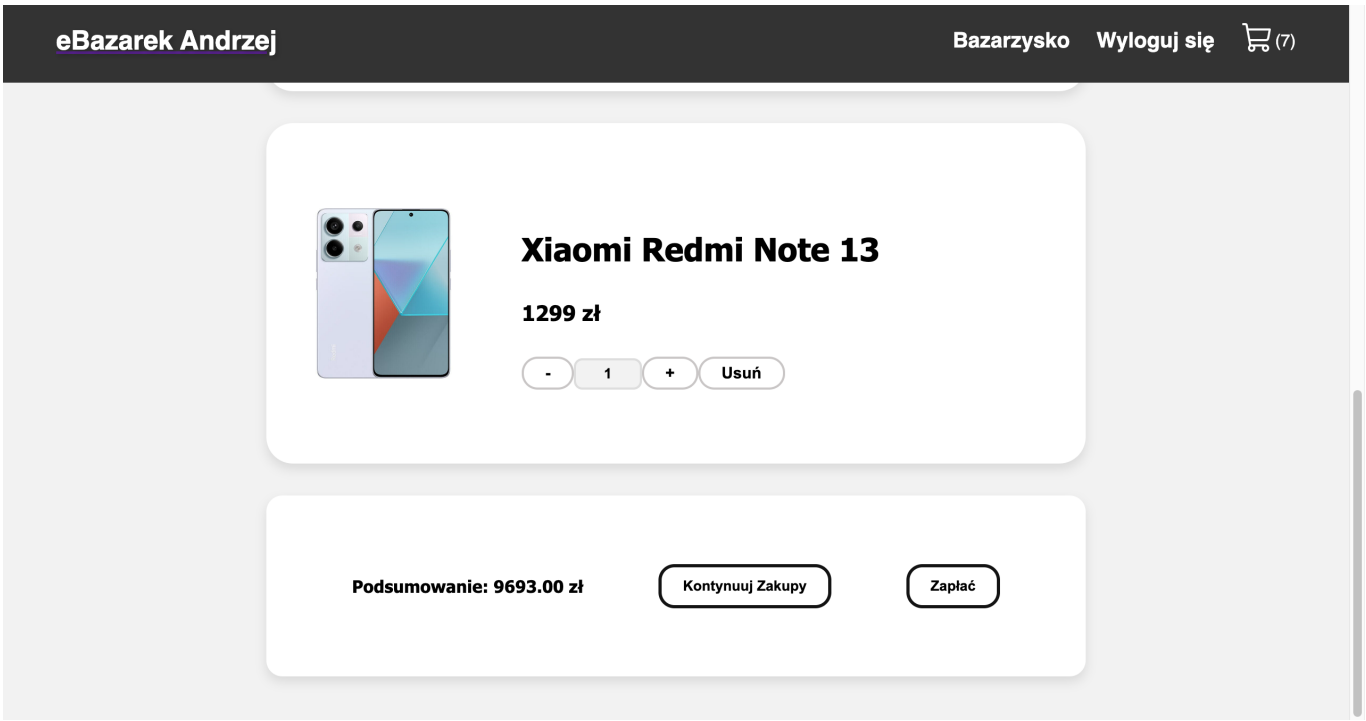
Strona wyboru produktu



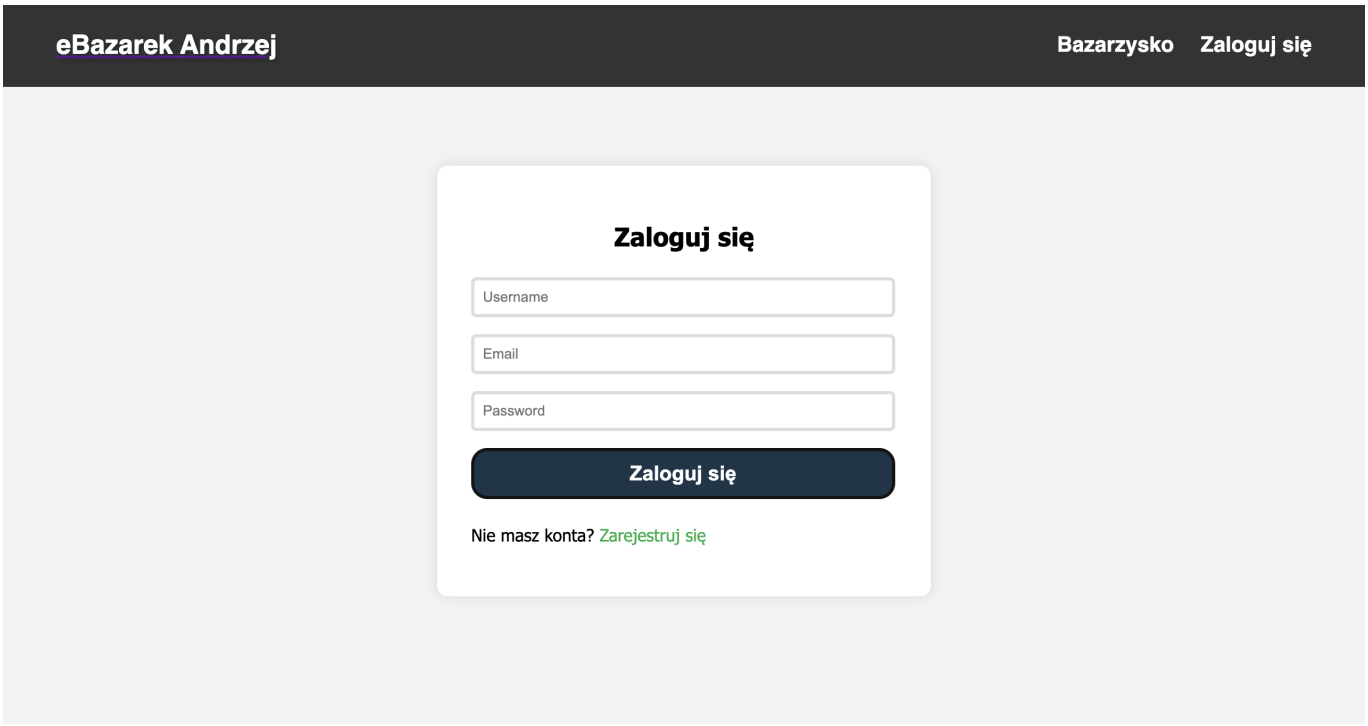
Strona wyboru produktu (po zalogowaniu)



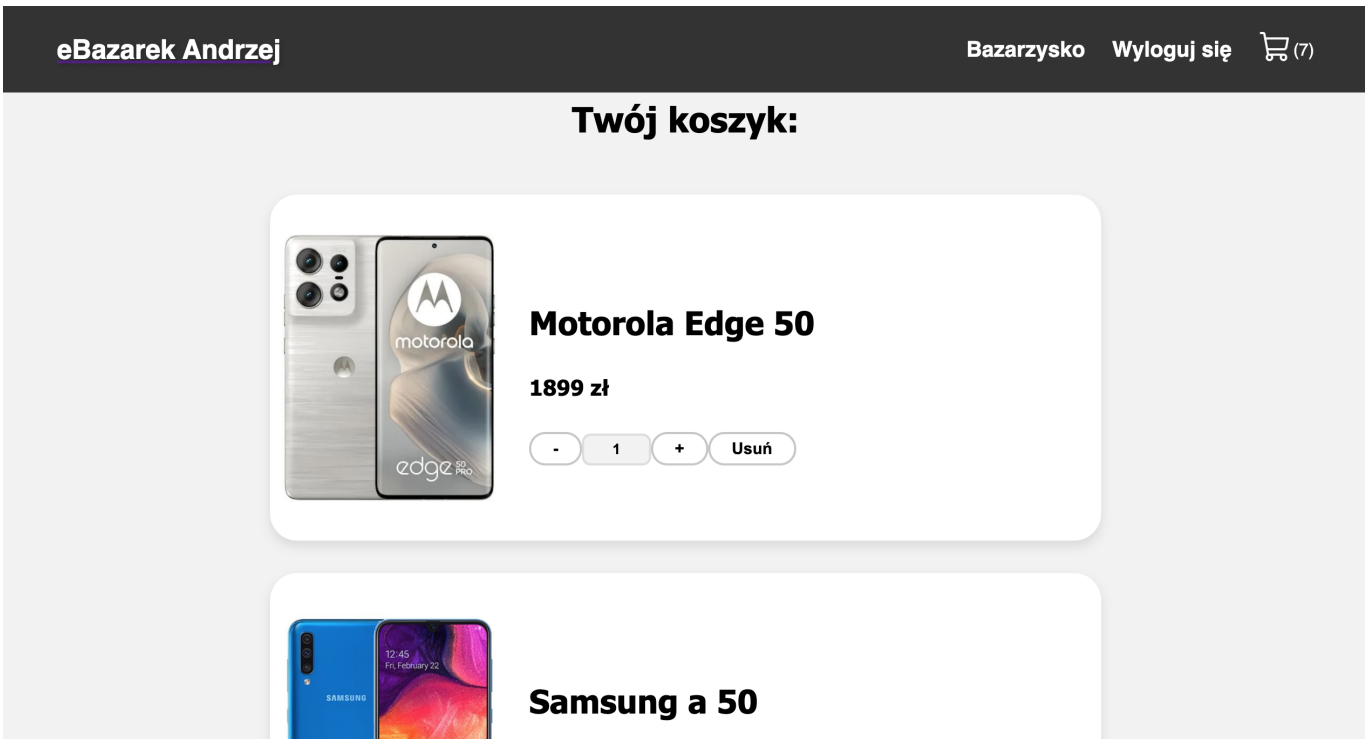
Szczegółowy widok produktu



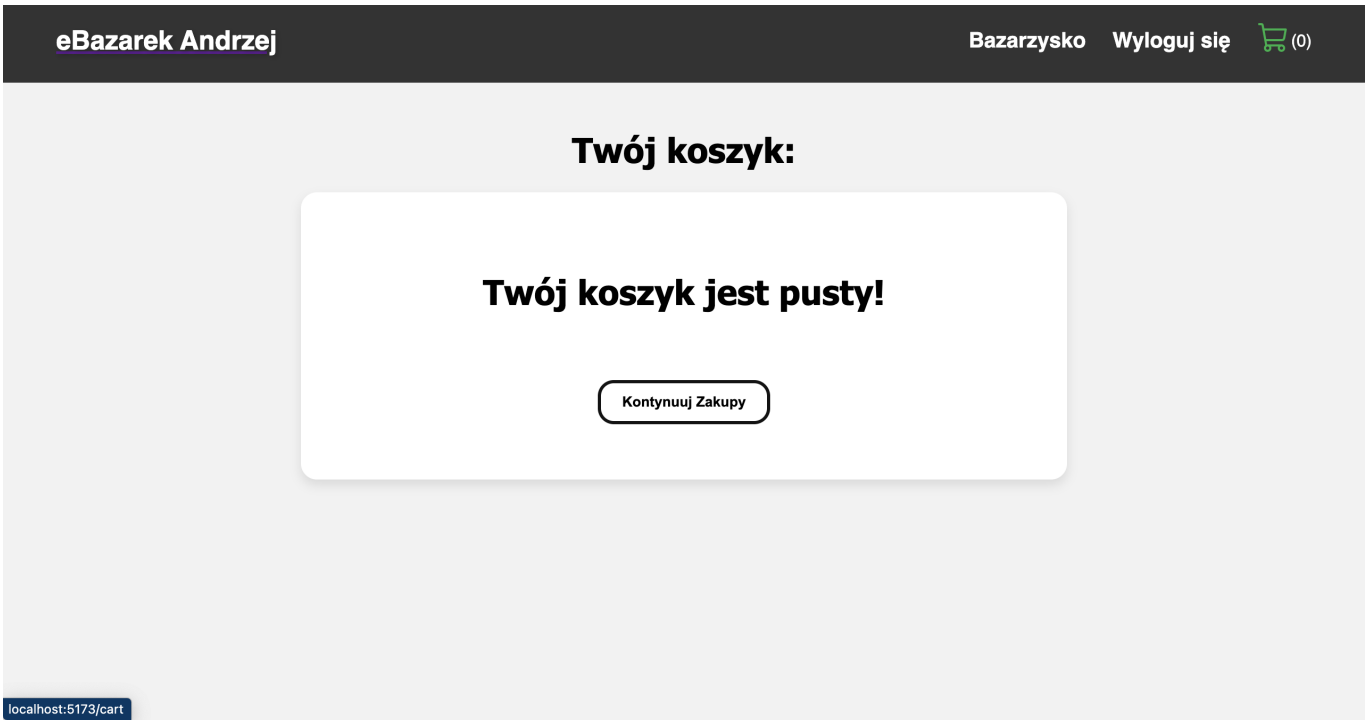
Panel logowania



Koszyk

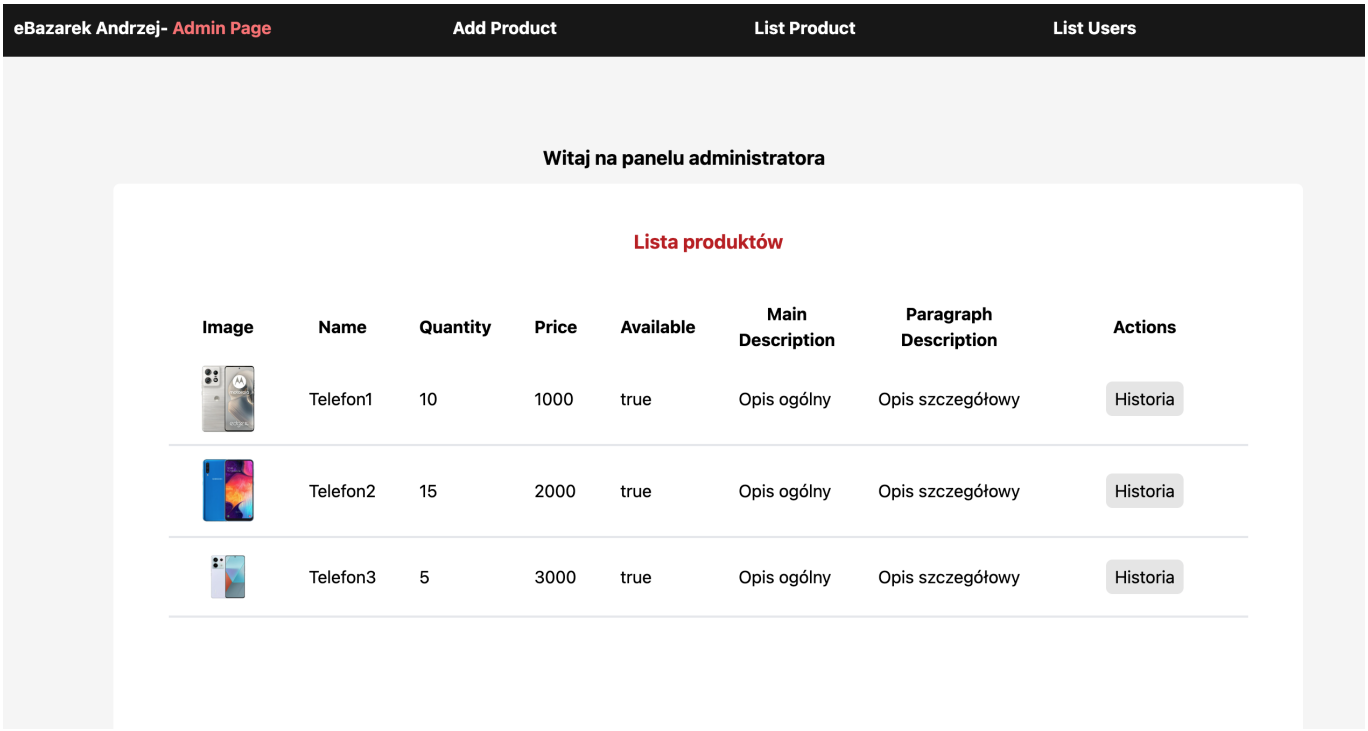


Koszyk (pusty)

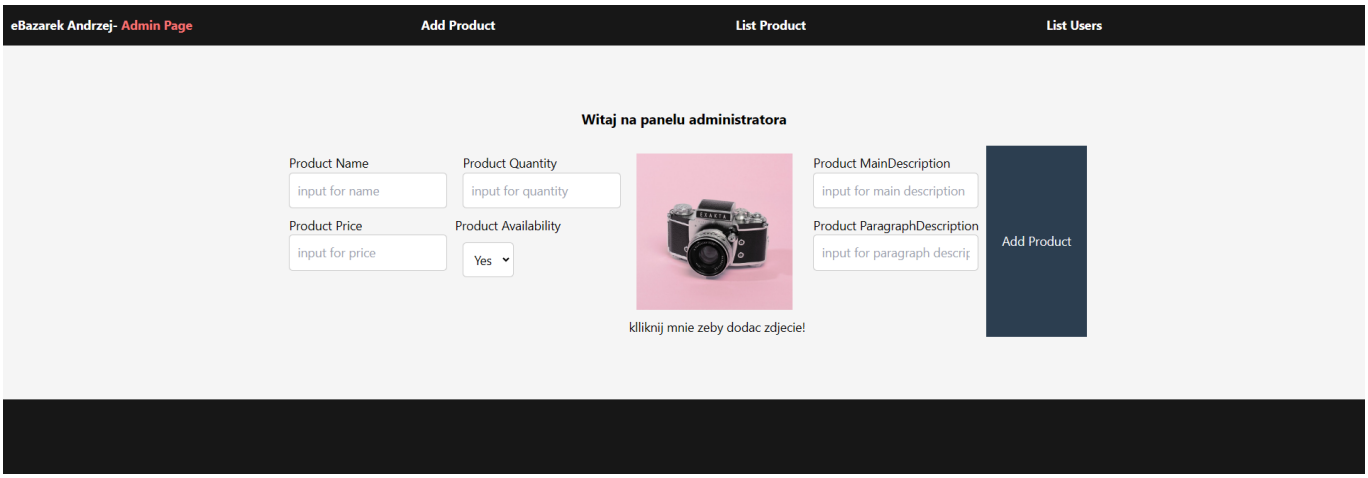


Panel administratora - zdjęcia

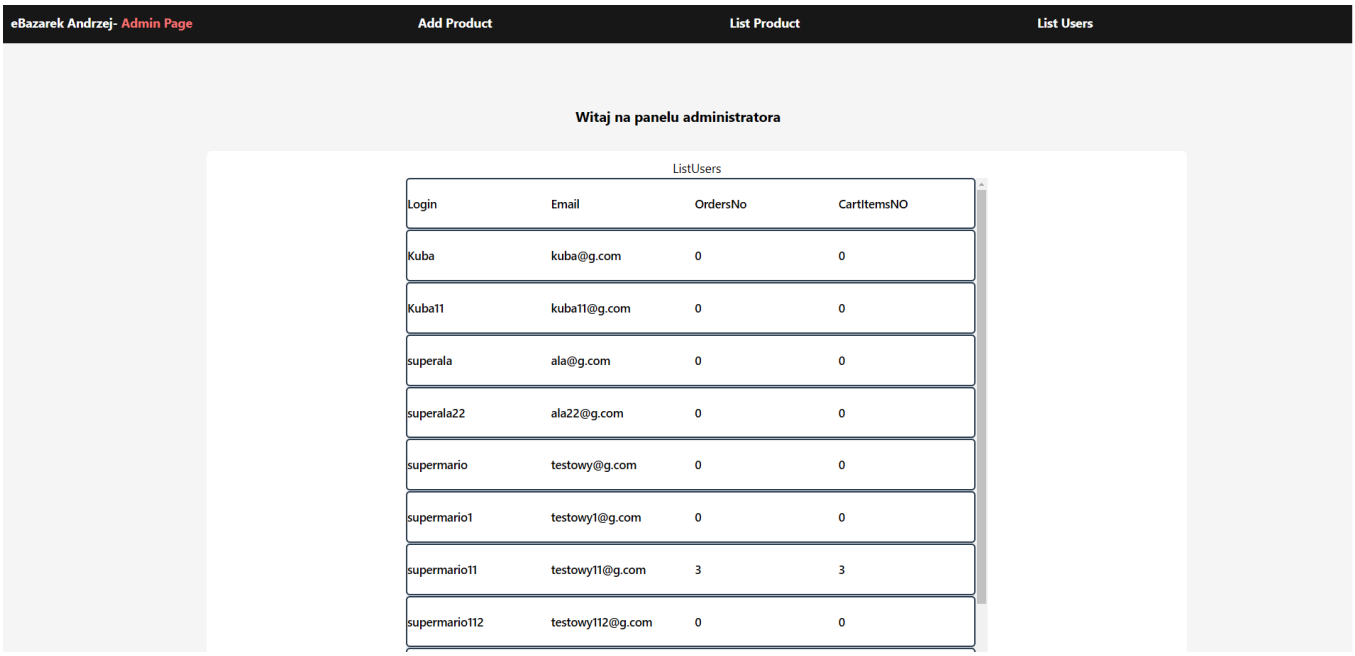
Panel administratora (listowanie produktów)



Dodawanie produktu



Lista użytkowników



Login	Email	OrdersNo	CartItemsNO
Kuba	kuba@g.com	0	0
Kuba11	kuba11@g.com	0	0
superala	ala@g.com	0	0
superala22	ala22@g.com	0	0
supermario	testowy@g.com	0	0
supermario1	testowy1@g.com	0	0
supermario11	testowy11@g.com	3	3
supermario112	testowy112@g.com	0	0