API			
BE Services	Request	Resource	Output
Authentication	GET	/auth/status	Current authentication status.
	POST	/auth/login	User authenticated successfully.
	PUT	/auth/update	User credentials updated.
	DELETE	/auth/logout	User logged out.

BE Services	Request	Response
Authentication	List profiles	UserProfile
	Profile details	UserProfile
	Create profile	UserProfile
	Update profile	UserProfile
	Delete profile	UserProfile

FE Services
Fill in Credentials
Delete Credentials
Login
Recover Password
Create Account
Logout

```
{
  "path": "/auth/status",
  "summary": "Get authentication status",
  "tags": ["Authentication"],
  "parameters": [],
  "responses": {
    "200": {
      "description": "Current authentication status",
      "content": {
        "application/json": {
          "schema": {
            "type": "object",
            "properties": {
              "status": {
                "type": "string"
              }
            }
          }
        }
      }
    }
  }
}
```

```
{
  "path": "/auth/update",
  "summary": "Update user credentials",
  "tags": ["Authentication"],
  "parameters": [],
  "requestBody": {
    "required": true,
    "content": {
      "application/json": {
        "schema": {
          "type": "object",
          "properties": {
            "username": {
              "type": "string"
            }
            "oldPassword": {
              "type": "string"
            }
            "newPassword": {
              "type": "string"
            }
          }
        }
      }
    }
  }
  "responses": {
    "200": {
      "description": "User credentials updated",
      "content": {
        "application/json": {
          "schema": {
            "type": "object",
            "properties": {
              "status": {
                "type": "string"
              }
            }
          }
        }
      }
    }
  }
}
```

```
{
  "path": "/auth/login",
  "summary": "Login user",
  "tags": ["Authentication"],
  "parameters": [],
  "requestBody": {
    "required": true,
    "content": {
      "application/json": {
        "schema": {
          "type": "object",
          "properties": {
            "username": {
              "type": "string"
            }
            "password": {
              "type": "string"
            }
          }
        }
      }
    }
  }
  "responses": {
    "200": {
      "description": "User authenticated successfully",
      "content": {
        "application/json": {
          "schema": {
            "type": "object",
            "properties": {
              "token": {
                "type": "string"
              }
            }
          }
        }
      }
    }
  }
}
```

```
{
  "path": "/auth/logout",
  "summary": "Logout user",
  "tags": ["Authentication"],
  "parameters": [],
  "responses": {
    "204": {
      "description": "User logged out",
      "content": {}
    }
  }
}
```

Authentication

API			
BE Services	Operation	Endpoint	Output
News	GET	/news	List of all news articles.
	GET	/news/{id}	Details of the specified news article.
	POST	/news	News article created successfully.
	PUT	/news/{id}	News article updated.
	DELETE	/news/{id}	News article removed.
	PUT	/news/{id}/archive	News article archived.

BE Services	Request	Response
News	List news	News
	News details	News
	Create news	News
	Update news	News
	Delete news	News
	Archive news	News

FE Services
View News
View Select News in Detail

```
{
  "path": "/news/{id}",
  "summary": "Get details of the specified news article",
  "tags": ["News"],
  "parameters": [
    {
      "in": "path",
      "name": "id",
      "required": true,
      "schema": {
        "type": "integer"
      }
    }
  ]
  "responses": {
    "200": {
      "description": "Details of the specified news article",
      "content": {
        "application/json": {
          "schema": {
            "type": "object",
            "properties": {
              "newsId": {"type": "integer"},
              "title": {"type": "string"},
              "content": {"type": "string"},
              "date": {"type": "string"}
            }
          }
        }
      }
    }
  }
}
```

```
{
  "path": "/news",
  "summary": "Create a new news article",
  "tags": ["News"],
  "parameters": [],
  "requestBody": {
    "required": true,
    "content": {
      "application/json": {
        "schema": {
          "type": "object",
          "properties": {
            "title": {"type": "string"},
            "content": {"type": "string"},
            "date": {"type": "string"}
          }
        }
      }
    }
  }
  "responses": {
    "201": {
      "description": "News article created successfully",
      "content": {
        "application/json": {
          "schema": {
            "type": "object",
            "properties": {
              "newsId": {"type": "integer"},
              "title": {"type": "string"},
              "content": {"type": "string"},
              "date": {"type": "string"}
            }
          }
        }
      }
    }
  }
}
```

```
{
  "path": "/news/{id}",
  "summary": "Update an existing news article",
  "tags": ["News"],
  "parameters": [
    {
      "in": "path",
      "name": "id",
      "required": true,
      "schema": {
        "type": "integer"
      }
    }
  ]
  "requestBody": {
    "required": true,
    "content": {
      "application/json": {
        "schema": {
          "type": "object",
          "properties": {
            "title": {"type": "string"},
            "content": {"type": "string"},
            "date": {"type": "string"}
          }
        }
      }
    }
  }
  "responses": {
    "200": {
      "description": "News article updated",
      "content": {
        "application/json": {
          "schema": {
            "type": "object",
            "properties": {
              "newsId": {"type": "integer"},
              "title": {"type": "string"},
              "content": {"type": "string"},
              "date": {"type": "string"}
            }
          }
        }
      }
    }
  }
}
```

```
{
  "path": "/news/{id}",
  "summary": "Delete an existing news article",
  "tags": ["News"],
  "parameters": [],
  "responses": {
    "204": {
      "description": "News article removed",
      "content": {}
    }
  }
}
```

```
{
  "path": "/news",
  "summary": "Get list of all news articles",
  "tags": ["News"],
  "parameters": [],
  "responses": {
    "200": {
      "description": "List of all news articles",
      "content": {
        "application/json": {
          "schema": {
            "type": "array",
            "items": {
              "type": "object",
              "properties": {
                "newsId": {"type": "integer"},
                "title": {"type": "string"},
                "content": {"type": "string"},
                "date": {"type": "string"}
              }
            }
          }
        }
      }
    }
  }
}
```

```
{
  "path": "/news/{id}/archive",
  "summary": "Archive an existing news article",
  "tags": ["News"],
  "parameters": [
    {
      "in": "path",
      "name": "id",
      "required": true,
      "schema": {
        "type": "integer"
      }
    }
  ]
  "responses": {
    "200": {
      "description": "News article archived",
      "content": {
        "application/json": {
          "schema": {
            "type": "object",
            "properties": {
              "status": {"type": "string"}
            }
          }
        }
      }
    }
  }
}
```

News

API			
BE Services	Endpoint	Output
Analytics	GET /analytics	Statistical data and analytics.
	GET /analytics/{id}	Details of the specified statistical data.

BE Services	Request	Response
Analytics	List analytics	Analytics
	Analytics details	Analytics

FE Services
Navigate to Statistics Page
Visualize Positive Statistics
Navigate to Negative Statistics Page
Visualize Negative Statistics
Navigate to Positive Statistics Page

```
{
  "path": "/analytics",
  "summary": "Get statistical data and analyses",
  "tags": ["Analytics"],
  "parameters": [],
  "responses": {
    "200": {
      "description": "Statistical data and analyses",
      "content": {
        "application/json": {
          "schema": {
            "type": "array",
            "items": {
              "type": "object",
              "properties": {
                "analysisId": {"type": "integer"},
                "metric": {"type": "string"},
                "value": {"type": "number"}
              }
            }
          }
        }
      }
    }
  }
}
```

```
{
  "path": "/analytics/{id}",
  "summary": "Get details of the specified statistical data",
  "tags": ["Analytics"],
  "parameters": [
    {
      "in": "path",
      "name": "id",
      "required": true,
      "schema": {
        "type": "integer"
      }
    }
  ]
  "responses": {
    "200": {
      "description": "Details of the specified statistical data",
      "content": {
        "application/json": {
          "schema": {
            "type": "object",
            "properties": {
              "analysisId": {"type": "integer"},
              "metric": {"type": "string"},
              "value": {"type": "number"}
              }
            }
          }
        }
      }
    }
  }
}
```

Statistics

API			
BE Services	Operation	Endpoint	Output
UserProfile	GET	/profiles	List of all user profiles.
	GET	/profiles/{id}	Details of the specified user profile.
	POST	/profiles	User profile created successfully.
	PUT	/profiles/{id}	User profile updated.
	DELETE	/profiles/{id}	User profile removed.

BE Services	Request	Response
UserProfile	List profiles	UserProfile
	Profile details	UserProfile
	Create profile	UserProfile
	Update profile	UserProfile
	Delete profile	UserProfile

FE Services
Visualize Account Information
Upload Profile Picture
Access Account Settings
Contact Application Team

```
{
  "path": "/profiles",
  "summary": "Get list of all user profiles",
  "tags": ["UserProfile"],
  "parameters": [],
  "responses": {
    "200": {
      "description": "List of all user profiles",
      "content": {
        "application/json": {
          "schema": {
            "type": "array",
            "items": {
              "type": "object",
              "properties": {
                "id": {"type": "integer"},
                "name": {"type": "string"},
                "email": {"type": "string"},
                "age": {"type": "integer"}
              }
            }
          }
        }
      }
    }
  }
}
```

```
{
  "path": "/profiles/{id}",
  "summary": "Get details of the specified user profile",
  "tags": ["UserProfile"],
  "parameters": [
    {
      "in": "path",
      "name": "id",
      "required": true,
      "schema": {
        "type": "integer"
      }
    }
  ]
  "responses": {
    "200": {
      "description": "Details of the specified user profile",
      "content": {
        "application/json": {
          "schema": {
            "type": "object",
            "properties": {
              "id": {"type": "integer"},
              "name": {"type": "string"},
              "email": {"type": "string"},
              "age": {"type": "integer"}
              }
            }
          }
        }
      }
    }
  }
}
```

```
{
  "path": "/profiles",
  "summary": "Create a new user profile",
  "tags": ["UserProfile"],
  "parameters": [],
  "requestBody": {
    "required": true,
    "content": {
      "application/json": {
        "schema": {
          "type": "object",
          "properties": {
            "name": {"type": "string"},
            "email": {"type": "string"},
            "age": {"type": "integer"}
          }
        }
      }
    }
  }
  "responses": {
    "201": {
      "description": "User profile created successfully",
      "content": {
        "application/json": {
          "schema": {
            "type": "object",
            "properties": {
              "id": {"type": "integer"},
              "name": {"type": "string"},
              "email": {"type": "string"},
              "age": {"type": "integer"}
              }
            }
          }
        }
      }
    }
  }
}
```

```
{
  "path": "/profiles/{id}",
  "summary": "Update an existing user profile",
  "tags": ["UserProfile"],
  "parameters": [
    {
      "in": "path",
      "name": "id",
      "required": true,
      "schema": {
        "type": "integer"
      }
    }
    {
      "requestBody": {
        "required": true,
        "content": {
          "application/json": {
            "schema": {
              "type": "object",
              "properties": {
                "name": {"type": "string"},
                "email": {"type": "string"},
                "age": {"type": "integer"}
              }
            }
          }
        }
      }
    }
  "responses": {
    "200": {
      "description": "User profile updated",
      "content": {
        "application/json": {
          "schema": {
            "type": "object",
            "properties": {
              "id": {"type": "integer"},
              "name": {"type": "string"},
              "email": {"type": "string"},
              "age": {"type": "integer"}
              }
            }
          }
        }
      }
    }
  }
}
```

```
{
  "path": "/profiles/{id}",
  "summary": "Delete an existing user profile",
  "tags": ["UserProfile"],
  "parameters": [
    {
      "in": "path",
      "name": "id",
      "required": true,
      "schema": {
        "type": "integer"
      }
    }
  ]
  "responses": {
    "204": {
      "description": "User profile removed",
      "content": {}
    }
  }
}
```

```
{
  "path": "/feedback/{id}",
  "summary": "Get details of the specified feedback",
  "tags": ["Feedback"],
  "parameters": [
    {
      "in": "path",
      "name": "id",
      "required": true,
      "schema": {
        "type": "integer"
      }
    }
  ]
  "responses": {
    "200": {
      "description": "Details of the specified feedback",
      "content": {
        "application/json": {
          "schema": {
            "type": "object",
            "properties": {
              "feedbackId": {"type": "integer"},
              "feedback": {"type": "string"},
              "productId": {"type": "integer"},
              "rating": {"type": "integer"},
              "comment": {"type": "string"}
              }
            }
          }
        }
      }
    }
  }
}
```

```
{
  "path": "/feedback",
  "summary": "Get list of all feedback",
  "tags": ["Feedback"],
  "parameters": [],
  "responses": {
    "200": {
      "description": "List of all feedback",
      "content": {
        "application/json": {
          "schema": {
            "type": "array",
            "items": {
              "type": "object",
              "properties": {
                "feedbackId": {"type": "integer"},
                "feedback": {"type": "string"},
                "productId": {"type": "integer"},
                "rating": {"type": "integer"},
                "comment": {"type": "string"}
                }
              }
            }
          }
        }
      }
    }
  }
```

```
{
  "path": "/feedback",
  "summary": "Submit feedback",
  "tags": ["Feedback"],
  "parameters": [],
  "requestBody": {
    "required": true,
    "content": {
      "application/json": {
        "schema": {
          "type": "object",
          "properties": {
            "user": {"type": "integer"},
            "productId": {"type": "integer"},
            "rating": {"type": "integer"},
            "comment": {"type": "string"}
            }
          }
        }
      }
    }
  }
  "responses": {
    "201": {
      "description": "Feedback submitted successfully",
      "content": {
        "application/json": {
          "schema": {}
          }
        }
      }
    }
  }
```

Product

FE Services
View Products
Select Products
View Product Details
View Product Categories
Save Product
View Saved Products
Access Further Details of Saved Products
View Reviews
Give Product Feedback

BE Services	Request	Response
ProductInfo	List products	ProductInfo
	Product details	ProductInfo
	Create product	ProductInfo
	Update product	ProductInfo
	Delete product	ProductInfo
Feedback	List feedback	Feedback
	Feedback details	Feedback
	Submit feedback	Feedback
	Delete feedback	Feedback
Favorites	List favorites	Favorites
	Add to favorites	Favorites
	Remove from favorites	Favorites

```
{
  "path": "/products/{id}",
  "summary": "Delete a specific product",
  "tags": ["ProductInfo"],
  "parameters": [
    {
      "in": "path",
      "name": "id",
      "required": true,
      "schema": {
        "type": "integer"
      }
    }
  ]
  "responses": {
    "204": {
      "description": "Successfully deleted",
      "content": {}
    }
    "404": {
      "description": "Product not found",
      "content": {}
    }
  }
}
```

```
{
  "path": "/products",
  "summary": "Get list of all products",
  "tags": ["ProductInfo"],
  "parameters": [],
  "responses": {
    "200": {
      "description": "List of all products",
      "content": {
        "application/json": {
          "schema": {
            "type": "array",
            "items": {
              "type": "object",
              "properties": {
                "productId": {"type": "integer"},
                "name": {"type": "string"},
                "price": {"type": "number"},
                "description": {"type": "string"}
                }
              }
            }
          }
        }
      }
    }
  }
```

```
{
  "path": "/favorites",
  "summary": "Add product to favorites",
  "tags": ["Favorites"],
  "parameters": [],
  "requestBody": {
    "required": true,
    "content": {
      "application/json": {
        "schema": {
          "type": "object",
          "properties": {
            "productId": {"type": "integer"},
            "userId": {"type": "integer"}
            }
          }
        }
      }
    }
  }
  "responses": {
    "201": {
      "description": "Product added to favorites",
      "content": {
        "application/json": {
          "schema": {
            "type": "object",
            "properties": {
              "favoriteId": {"type": "integer"},
              "productId": {"type": "integer"},
              "userId": {"type": "integer"}
              }
            }
          }
        }
      }
    }
  }
```

```
{
  "path": "/favorites/{id}",
  "summary": "Remove favorite product",
  "tags": ["Favorites"],
  "parameters": [
    {
      "in": "path",
      "name": "id",
      "required": true,
      "schema": {
        "type": "integer"
      }
    }
  ]
  "responses": {
    "200": {
      "description": "Favorite product removed",
      "content": {
        "application/json": {
          "schema": {
            "type": "object",
            "properties": {
              "success": {"type": "boolean"}
              }
            }
          }
        }
      }
    }
  }
```

```
{
  "path": "/favorites",
  "summary": "Get list of user's favorite products",
  "tags": ["Favorites"],
  "parameters": [],
  "responses": {
    "200": {
      "description": "List of user's favorite products",
      "content": {
        "application/json": {
          "schema": {
            "type": "array",
            "items": {
              "type": "object",
              "properties": {
                "favoriteId": {"type": "integer"},
                "productId": {"type": "integer"},
                "userId": {"type": "integer"}
                }
              }
            }
          }
        }
      }
    }
  }
```

API			
BE Services	Operation	Endpoint	Output
ProductInfo	GET	/products	List of all products.
	GET	/products/{id}	Details of the specified product.
	POST	/products	Product created successfully.
	PUT	/products/{id}	Product information updated.
	DELETE	/products/{id}	Product information deleted.
Feedback	GET	/feedback	List of all feedback.
	GET	/feedback/{id}	Details of the specified feedback.
	POST	/feedback	Feedback submitted successfully.
	DELETE	/feedback/{id}	Feedback removed.
Favorites	GET	/favorites	List of all user's favorite products.
	POST	/favorites	Product added to favorites.
	DELETE	/favorites/{id}	Favorite product removed.

```
{
  "path": "/products",
  "summary": "Create a new product",
  "tags": ["ProductInfo"],
  "parameters": [],
  "requestBody": {
    "required": true,
    "content": {
      "application/json": {
        "schema": {
          "type": "object",
          "properties": {
            "name": {"type": "string"},
            "price": {"type": "number"},
            "description": {"type": "string"}
            }
          }
        }
      }
    }
  }
  "responses": {
    "201": {
      "description": "Product created successfully",
      "content": {
        "application/json": {}
        }
      }
    }
  }
```

```
{
  "path": "/products/{id}",
  "summary": "Get details of the specified product",
  "tags": ["ProductInfo"],
  "parameters": [
    {
      "in": "path",
      "name": "id",
      "required": true,
      "schema": {
        "type": "integer"
      }
    }
  ]
  "responses": {
    "200": {
      "description": "Details of the specified product",
      "content": {
        "application/json": {
          "schema": {
            "type": "object",
            "properties": {
              "productId": {"type": "integer"},
              "name": {"type": "string"},
              "price": {"type": "number"},
              "description": {"type": "string"}
              }
            }
          }
        }
      }
    }
  }
```

```
{
  "path": "/products/{id}",
  "summary": "Update an existing product",
  "tags": ["ProductInfo"],
  "parameters": [
    {
      "in": "path",
      "name": "id",
      "required": true,
      "schema": {
        "type": "integer"
      }
    }
    {
    "requestBody": {
      "required": true,
      "content": {
        "application/json": {
          "schema": {
            "type": "object",
            "properties": {
              "name": {"type": "string"},
              "price": {"type": "number"},
              "description": {"type": "string"}
              }
            }
          }
        }
      }
    }
  "responses": {
    "200": {
      "description": "Product information updated",
      "content": {
        "application/json": {}
        }
      }
    }
  }
```

Main Page

FE Services
Navigate to Homepage
Navigate to Saved Products
Navigate to QR Code Scanner
Navigate to News
Navigate to Profile Page
Visualize supermarket location
Select and explore locations
Access selected supermarket info
Access product categories

BE Services	Request	Response
StoreManagement	List stores	StoreManagement
	Store details	StoreManagement
	Create store	StoreManagement
	Update store	StoreManagement
	Delete store	StoreManagement

```
{
  "path": "/stores",
  "summary": "Create a new store",
  "tags": ["StoreManagement"],
  "parameters": [],
  "requestBody": {
    "required": true,
    "content": {
      "application/json": {
        "schema": {
          "type": "object",
          "properties": {
            "name": {"type": "string"},
            "location": {"type": "string"}
            }
          }
        }
      }
    }
  }
  "responses": {
    "201": {
      "description": "Store created successfully",
      "content": {
        "application/json": {
          "schema": {
            "type": "object",
            "properties": {
              "storeId": {"type": "integer"},
              "name": {"type": "string"},
              "location": {"type": "string"}
              }
            }
          }
        }
      }
    }
  }
```

```
{
  "path": "/stores/{id}",
  "summary": "Update an existing store",
  "tags": ["StoreManagement"],
  "parameters": [
    {
      "in": "path",
      "name": "id",
      "required": true,
      "schema": {
        "type": "integer"
      }
    }
  ]
  "requestBody": {
    "required": true,
    "content": {
      "application/json": {
        "schema": {
          "type": "object",
          "properties": {
            "name": {"type": "string"},
            "location": {"type": "string"}
            }
          }
        }
      }
    }
  }
  "responses": {
    "200": {
      "description": "Store information updated",
      "content": {
        "application/json": {
          "schema": {
            "type": "object",
            "properties": {
              "storeId": {"type": "integer"},
              "name": {"type": "string"},
              "location": {"type": "string"}
              }
            }
          }
        }
      }
    }
  }
```

```
{
  "path": "/stores/{id}",
  "summary": "Get details of the specified store",
  "tags": ["StoreManagement"],
  "parameters": [
    {
      "in": "path",
      "name": "id",
      "required": true,
      "schema": {
        "type": "integer"
      }
    }
  ]
  "responses": {
    "200": {
      "description": "Details of the specified store",
      "content": {
        "application/json": {
          "schema": {
            "type": "object",
            "properties": {
              "storeId": {"type": "integer"},
              "name": {"type": "string"},
              "location": {"type": "string"}
              }
            }
          }
        }
      }
    }
  }
```

API			
BE Services	Operation	Endpoint	Output
StoreManagement	GET	/stores	List of all stores.
	GET	/stores/{id}	Details of the specified store.
	POST	/stores	Store created successfully.
	PUT	/stores/{id}	Store information updated.
	DELETE	/stores/{id}	Store information deleted.

```
{
  "path": "/stores/{id}",
  "summary": "Delete an existing store",
  "tags": ["StoreManagement"],
  "parameters": [
    {
      "in": "path",
      "name": "id",
      "required": true,
      "schema": {
        "type": "integer"
      }
    }
  ]
  "responses": {
    "204": {
      "description": "Store information deleted",
      "content": {}
    }
  }
}
```

```
{
  "path": "/stores",
  "summary": "Get list of all stores",
  "tags": ["StoreManagement"],
  "parameters": [],
  "responses": {
    "200": {
      "description": "List of all stores",
      "content": {
        "application/json": {
          "schema": {
            "type": "array",
            "items": {
              "type": "object",
              "properties": {
                "storeId": {"type": "integer"},
                "name": {"type": "string"},
                "location": {"type": "string"}
                }
              }
            }
          }
        }
      }
    }
  }
```

QR Code

FE Services
QR Scan Products

BE Services	Request	Response
QRCode	Read QR code	QRCode

API			
BE Services	Operation	Endpoint	Output
QRCode	POST	/qrcode/decoded	QR code read successfully.

```
{
  "path": "/qrcode/decode",
  "summary": "Read QR code",
  "tags": ["QRCode"],
  "parameters": [],
  "requestBody": {
    "required": true,
    "content": {
      "application/json": {
        "schema": {
          "type": "object",
          "properties": {
            "qrcode": {"type": "string"}
            }
          }
        }
      }
    }
  }
  "responses": {
    "200": {
      "description": "QR code decoded successfully",
      "content": {
        "application/json": {
          "schema": {
            "type": "object",
            "properties": {
              "productId": {"type": "integer"},
              "name": {"type": "string"},
              "price": {"type": "number"},
              "description": {"type": "string"}
              }
            }
          }
        }
      }
    }
  }
```