DISPLAY RECOMMENDATIONS

Add Recommendations to our app

To add our recommendation query, we simply have to call our AppSync API.

Replace the contents of **App.js** with the following code to hook up our recommendation handling. **Save the file App.js**:

```
import React, { Fragment, Component } from "react";
import "./App.css";
import { Container, Row, Col, Button, Input } from "reactstrap";
import Header from "./components/header";
import SideCard from "./components/sideCard";
import MenuItem from "./components/menu";
import OrderHistory from "./components/orders";
import Amplify, {Auth, Hub, Cache, API, graphqlOperation} from "aws-
amplify";
import { Authenticator, ChatBot  } from "aws-amplify-react";
import Predictions, { AmazonAIPredictionsProvider} from "@aws-
amplify/predictions";
import { createOrder, createItem, updateOrder,  createReview,
createReviewPhrase } from "./graphql/mutations";
import awsconfig from "./aws-exports";

Amplify.addPluggable(new AmazonAIPredictionsProvider());
Amplify.configure(awsconfig);

const signUpConfig = {
  header: "Welcome!",
  signUpFields: [
    {
      label: "First Name",
      key: "given_name",
```

```
      placeholder: "First Name",
      required: true,
      displayOrder: 5
    },
    {
      label: "Last Name",
      key: "family_name",
      placeholder: "Last Name",
      required: true,
      displayOrder: 6
    },
    {
      label: "Address",
      key: "address",
      placeholder: "Address",
      required: true,
      displayOrder: 7
    }
  ]
};

class App extends Component {
  state = {
    showType: "",
    loggedIn: false,
    currentUser: null,
    recommendations: null
  };

  listProductsWithVariant = `query ListProducts(
    $filter: ModelProductFilterInput
    $limit: Int
    $nextToken: String
  ) {
    listProducts(filter: $filter, limit: $limit, nextToken: $nextToken) {
      items {
        id
        productId
        productName
        category
        description
        defaultPrice
        sizes {
            items {
              price
              size
            }
          }
      }
      nextToken
    }
```

```
    }
    `;

    async loadExistingOrder(orderId) {
      const getOrderWithItems = `query GetOrder($id: ID!) {
        getOrder(id: $id) {
          id
          name
          user
          phone
          email
          orderDate
          orderTotal
          deliveryType
          deliveryDate
          status
          items {
            items {
              id
              itemName
              comments
              quantity
              size
              unitPrice
              totalPrice
            }
            nextToken
          }
        }
      }
      `;
      // Now we want to update the state with the new order data
      const orderInput = {
        id: orderId
      };
      const getOrderResult = await API.graphql(
        graphqlOperation(getOrderWithItems, orderInput)
      );
      this.setState({
        currentOrder: getOrderResult.data.getOrder
      });
    }

    createNewItem = async itemInput => {
      const newItem = await API.graphql(
        graphqlOperation(createItem, {
          input: itemInput
        })
      );
      return newItem;
    };
```

```
createNewOrder = async orderInput => {
  const newOrder = await API.graphql(
    graphqlOperation(createOrder, {
      input: orderInput
    })
  );
  return newOrder;
};

appendLeadingZeroes = n => {
  if (n <= 9) {
    return "0" + n;
  }
  return n;
};

createOrderName(today) {
  return (
    today.getFullYear() +
    "-" +
    this.appendLeadingZeroes(today.getMonth() + 1) +
    "-" +
    this.appendLeadingZeroes(today.getDate())
  );
}

getOrderDate(today) {
  return (
    today.getFullYear() +
    "-" +
    this.appendLeadingZeroes(today.getMonth() + 1) +
    "-" +
    this.appendLeadingZeroes(today.getDate()) +
    "T" +
    this.appendLeadingZeroes(today.getHours()) +
    ":" +
    this.appendLeadingZeroes(today.getMinutes()) +
    ":" +
    this.appendLeadingZeroes(today.getSeconds()) +
    "-05:00:00"
  );
}

async createNewOrderConstruct() {
  var today = new Date();
  var orderName = this.createOrderName(today);
  var orderDate = this.getOrderDate(today);

  const orderInput = {
    name: "ORDER: " + orderName,
```

```
      user: this.state.currentUser,
      phone: this.state.currentUserData.attributes.phone_number,
      email: this.state.currentUserData.attributes.email,
      orderDate: orderDate,
      orderTotal: this.getTotal(this.state.currentOrder),
      deliveryType: "Carryout",
      deliveryDate: orderDate,
      status: "IN PROGRESS"
    };

    const newOrder = await this.createNewOrder(orderInput);
    return newOrder;
  }
  handleAddItem = async item => {
    var checkOrder = this.state.currentOrder;
    if (!checkOrder) {
      // Create new order
      //var cUser = await Auth.currentAuthenticatedUser();
      var today = new Date();
      const expiration = new Date(today.getTime() + 60 * 60000);
      var newOrder = await this.createNewOrderConstruct();
      Cache.setItem("currentOrder", newOrder.data.createOrder.id, {
        priority: 3,
        expires: expiration.getTime()
      });
      checkOrder = newOrder.data.createOrder;
    }

    var currentOrderId = checkOrder.id;

    const totalPrice = item.quantity * item.price;
    const itemInput = {
      itemName: item.itemName,
      comments: "No Comments",
      quantity: item.quantity,
      size: item.size,
      unitPrice: item.price,
      totalPrice: totalPrice,
      itemOrderId: currentOrderId
    };
    await this.createNewItem(itemInput);
    this.loadExistingOrder(currentOrderId);
  };

  loadCurrentUser() {
    Auth.currentAuthenticatedUser().then(userInfo => {
      this.setState({
        loggedIn: true,
        currentUser: userInfo.username,
        currentUserData: userInfo
      });
```

```
        this.loadRecommendations();
      });
    }

    getPriceForSize(pId, selSize) {
      const retVal = this.state.menuItems.filter(item => item.productId ===
  pId);
      const rVal2 = retVal[0].sizes.items.filter(
        item2 => item2.size.toUpperCase() === selSize.toUpperCase()
      );
      return rVal2[0].price;
    }

    isLoggedIn = async () => {
      return await Auth.currentAuthenticatedUser()
        .then(() => {
          return true;
        })
        .catch(() => {
          return false;
        });
    };

    getCurrentUser = async () => {
      const user = await Auth.currentAuthenticatedUser();
      return user;
    };

    getTotal = items => {
      var totalPrice = 0;
      for (var i in items) {
        var qty = items[i]["quantity"];
        var price = items[i]["unitPrice"];
        var qtyPrice = qty * price;
        totalPrice += qtyPrice;
      }
      return totalPrice.toFixed(2);
    };

    createNewOrderConstructSync = () => {
      var today = new Date();
      var orderName = this.createOrderName(today);
      var orderDate = this.getOrderDate(today);

      const orderInput = {
        name: "ORDER: " + orderName,
        user: this.state.currentUser,
        phone: this.state.currentUserData.attributes.phone_number,
        email: this.state.currentUserData.attributes.email,
        orderDate: orderDate,
        orderTotal: this.getTotal(this.state.currentOrder),
```

```
      deliveryType: "Carryout",
      deliveryDate: orderDate,
      status: "IN PROGRESS"
    };

    this.createNewOrder(orderInput)
      .then(newOrder => {
        return newOrder;
      })
      .catch(err => {
        console.log(err);
      });
  };

  createNewItemSync = itemInput => {
    API.graphql(
      graphqlOperation(createItem, {
        input: itemInput
      })
    ).then(newItem => {
      return newItem;
    });
  };

  getItems = cOrder => {
    if (cOrder && cOrder.items) {
      return cOrder.items.items;
    } else {
      return null;
    }
  };

  completeOrder = () => {
    this.setState({ showType: "orderComplete" });
    const orderInput = {
      id: this.state.currentOrder.id,
      name: this.state.currentOrder.name,
      user: this.state.currentUser,
      phone: this.state.currentOrder.phone,
      email: this.state.currentOrder.email,
      orderDate: this.state.currentOrder.orderDate,
      orderTotal: this.getTotal(this.state.currentOrder.items.items),
      deliveryType: "Carryout",
      deliveryDate: this.state.currentOrder.deliveryDate,
      status: "COMPLETE"
    };

    API.graphql(
      graphqlOperation(updateOrder, {
        input: orderInput
      })
```

```
    ).then(result => {
      this.setState({
        currentOrder: null
      });
      Cache.removeItem("currentOrder");
    });
  };

  loadRecommendations() {
    // Get recommendation

    const getRecos = `
    query getRecos {
      getRecommendations(filter: {
        userId: {
          eq: "${this.state.currentUser}"
        }
      }) {
        items {
          itemId
          userId
          priority
        }
      }
    }
    `;
    API.graphql(graphqlOperation(getRecos))
      .then(result => {
        var firstResult = result.data.getRecommendations.items[0];
        var filterResult = this.state.menuItems.filter(
          myItem => myItem.productId === firstResult.itemId
        );
        this.setState({
          recommendedItems: result.data.getRecommendations.items,
          recommendations: filterResult
        });
      })
      .catch(err => {
        console.log("RECO ERR", err);
      });

  }

  componentDidMount = () => {
    Hub.listen("auth", ({ payload: { event, data } }) => {
      switch (event) {
        case "signIn":
          this.setState({
            currentUser: data.username,
            currentUserData: data,
            loggedIn: true
```

```
            });
            break;
          case "signOut":
            this.setState({
              currentUser: null,
              loggedIn: false
            });
            break;
          default:
            break;
        }
      });
      this.loadCurrentUser();

      var currentOrderId = null;
      var checkOrder = this.state.currentOrder;
      if (checkOrder) currentOrderId = checkOrder.id;
      else currentOrderId = Cache.getItem("currentOrder");
      if (currentOrderId) {
        this.loadExistingOrder(currentOrderId);
      }

      // Get menu items
      const limit = {
        limit: 100
      };

      API.graphql(graphqlOperation(this.listProductsWithVariant,
limit)).then(result => {
        this.setState({
          menuItems: result.data.listProducts.items
        });
      });

    };

    handleLogin = () => {
      this.setState({
        showType: "login"
      });
    };

    handleLogout = () => {
      this.setState({
        showType: "login"
      });
    };

    handleOrder = () => {
      this.setState({
        showType: "menu"
```

```
    });
  };

  handleHistory = () => {
    this.setState({
      showType: "orders"
    });
  };

  handleCheckout = () => {
    this.setState({
      showType: "checkout"
    });
  };

  handleChat = () => {
    this.setState({
      showType: "chat"
    });
  };

  handleReview = () => {
    this.setState({
      showType: "review"
    });
  };

  handleAddSpecial = rec => {
    var item = {
      itemName: rec.productName,
      quantity: 1,
      price: rec.sizes.items[0].price,
      size: rec.sizes.items[0].size
    };
    this.putTheChatOrder(item);
  };

  // ChatBot Helper Functions
  putTheChatOrder = async item => {
    var checkOrder = this.state.currentOrder;
    if (!checkOrder) {
      // Create new order
      //var cUser = await Auth.currentAuthenticatedUser();
      var today = new Date();
      const expiration = new Date(today.getTime() + 60 * 60000);
      var newOrder = await this.createNewOrderConstruct();
      Cache.setItem("currentOrder", newOrder.data.createOrder.id, {
        priority: 3,
        expires: expiration.getTime()
      });
      checkOrder = newOrder.data.createOrder;
```

```
    }

    var currentOrderId = checkOrder.id;

    const totalPrice = item.quantity * item.price;
    const itemInput = {
      itemName: item.itemName,
      comments: "Ordered from chatbot",
      quantity: item.quantity,
      size: item.size,
      unitPrice: item.price,
      totalPrice: totalPrice,
      itemOrderId: currentOrderId
    };
    await this.createNewItem(itemInput);
    this.loadExistingOrder(currentOrderId);
  };

  chatItemHelper(specialty) {
    var specLower = ""
    if (specialty)
      specLower = specialty.toLowerCase();
    switch (specLower) {
      case "supreme":
        return "0002";
      case "ultimate":
        return "0001";
      case "veggie":
        return "0003";
      case "meat lovers":
        return "0008";
      default:
        return "0004";
    }
  }

  handleComplete(err, confirmation) {
    if (err) {
      console.log("Bot conversation failed");
      return;
    }

    var pid = this.chatItemHelper(confirmation.slots.specialty);
    var price = this.getPriceForSize(pid, confirmation.slots.size);
    var specName = confirmation.slots.specialty;
    if (!specName) specName = "Cheese Pizza";
    var item = {
      itemName: specName,
      quantity: 1,
      price: price,
      size: confirmation.slots.size
```

```
    };
    this.putTheChatOrder(item);
    return "Great, I am adding that to your order!";
  }

  // Review Helper Functions
  saveReview(comments, results) {
    var today = new Date();
    const reviewInput = {
      comments: comments,
      username: this.state.currentUser,
      dateAdded: this.getOrderDate(today),
      sentiment: results.textInterpretation.sentiment.predominant
    };
    API.graphql(
      graphqlOperation(createReview, {
        input: reviewInput
      })
    );

    var i = 0;
    for (i in results.textInterpretation.keyPhrases) {
      const reviewPhraseInput = {
        phraseText: results.textInterpretation.keyPhrases[i].text,
        phraseType: "KEY PHRASE",
        dateAdded: this.getOrderDate(today),
        username: this.state.currentUser
      };

      API.graphql(
        graphqlOperation(createReviewPhrase, {
          input: reviewPhraseInput
        })
      );
    }

    for (i in results.textInterpretation.textEntities) {
      const reviewPhraseInput = {
        phraseText: results.textInterpretation.textEntities[i].text,
        phraseType: results.textInterpretation.textEntities[i].type,
        dateAdded: this.getOrderDate(today),
        username: this.state.currentUser
      };

      API.graphql(
        graphqlOperation(createReviewPhrase, {
          input: reviewPhraseInput
        })
      );
    }
  }
```

```
  updateComments(event) {
    this.setState({
      reviewComments: event.target.value
    });
  }

  submitFeedback = event => {
    Predictions.interpret({
      text: {
        source: {
          text: this.state.reviewComments
        },
        type: "ALL"
      }
    })
      .then(result => {
        const sentiment =
result.textInterpretation.sentiment.predominant;
        var sentimentMessage =
          "Thank you for your feedback.  We appreciate your comments and
love to hear from our customers!";
        switch (sentiment) {
          case "POSITIVE":
            sentimentMessage =
              "We are ECSTATIC to hear about your positive experience
with our store.  We hope we can continue to reach your expectations and
hope you order from us again!";
            break;
          case "NEGATIVE":
            sentimentMessage =
              "We are VERY SORRY to hear about your experience with us.
Please know that we take your comments very seriously and hope to earn
your business in the future. Give us another chance!";
            break;
          default:
            break;
        }
        this.setState({
          reviewResponse: sentimentMessage
        });
        this.saveReview(this.state.reviewComments, result);
      })
      .catch(err => {
        console.log("Prediction error", err);
      });
    this.setState({
      showType: "reviewComplete"
    });
  };
```

```
    render() {
      return (
        <Fragment>
          <Header
            onHandleLogin={this.handleLogin}
            onHandleLogout={this.handleLogout}
            onHandleHistory={this.handleHistory}
            onHandleReview={this.handleReview}
            loggedIn={this.state.loggedIn}
            userName={this.state.currentUser}
            onHandleOrder={this.handleOrder}
          />
          <div className="my-5 py-5">
            <Container className="px-0">
              <Row
                noGutters
                className="pt-2 pt-md-5 w-100 px-4 px-xl-0 position-
relative"
              >
                <Col
                  xs={{ order: 2 }}
                  md={{ size: 4, order: 1 }}
                  tag="aside"
                  className="pb-5 mb-5 pb-md-0 mb-md-0 mx-auto mx-md-0"
                >
                  <SideCard currentOrder={this.state.currentOrder}
onHandleCheckout={this.handleCheckout} onHandleChat={this.handleChat}
Recommendations={this.state.recommendations} onHandleAddSpecial=
{this.handleAddSpecial} />
                </Col>

                <Col
                  xs={{ order: 1 }}
                  md={{ size: 7, offset: 1 }}
                  tag="section"
                  className="py-5 mb-5 py-md-0 mb-md-0"
                >
                  {this.state.showType === "" ? "This is the main content"
: null}
                  {this.state.showType === "login" ? (
                    <Authenticator signUpConfig={signUpConfig} />
                  ) : null}
                  {this.state.showType === "menu" ? (<MenuItem onAddItem=
{this.handleAddItem}></MenuItem>) : null}
                  {this.state.showType === "orders" ? (
                    <OrderHistory userName={this.state.currentUser} />
                  ) : null}
                  {this.state.showType === "checkout" ? (
                    <Fragment>
                      <Container>
                        <Row className="font-weight-bold">
```

```
                <Col>Item Name</Col>
                <Col>Options</Col>
                <Col>Price</Col>
              </Row>
              {this.getItems(this.state.currentOrder)
                ? this.getItems(this.state.currentOrder).map(
                    orderInfo => (
                      <Row key={orderInfo.id}>
                        <Col>{orderInfo.itemName}</Col>
                        <Col>Qty: {orderInfo.quantity}</Col>
                        <Col>{orderInfo.totalPrice}</Col>
                      </Row>
                    )
                  )
                : null}
              <Row>
                <Col>TOTAL</Col>
                <Col></Col>
                <Col>
                  $
                  {this.getTotal(
                    this.getItems(this.state.currentOrder)
                  )}
                </Col>
              </Row>
            </Container>
            <Button onClick={this.completeOrder}>Complete
Order</Button>
          </Fragment>
        ) : null}
        {this.state.showType === "orderComplete" ? (
          <div>Thank you for your order!</div>
        ) : null}
        {this.state.showType === "chat" ? (

          <ChatBot
            title="Place an Order"
            botName="AndyPizzaOrder_dev"
            welcomeMessage={
              "Hi " +
              this.state.currentUser +
              ", how can i assist you today?"
            }
            onComplete={this.handleComplete.bind(this)}
            clearOnComplete={false}
            conversationModeOn={true}
          />
        ) : null}
        {this.state.showType === "reviewComplete" ? (
          <Fragment>
            <div>{this.state.reviewResponse}</div>
```

```
                  </Fragment>
                ) : null}
                {this.state.showType === "review" ? (
                  <Fragment>
                    <Input
                      type="textarea"
                      rows="6"
                      onChange={this.updateComments.bind(this)}
                    ></Input>
                    <br></br>
                    <Button
                      type="submit"
                      onClick={this.submitFeedback.bind(this)}
                    >
                      Submit Feedback
                    </Button>
                  </Fragment>
                ) : null}

              </Col>
            </Row>
          </Container>
        </div>
      </Fragment>
    );
  }
}

export default App;
```

The code above does the following:

- calls the getRecommendations query in AppSync: – `API.graphql(graphqlOperation(getRecos))...`
- adds the recommendation data to the SideCard component – `<SideCard ... Recommendations=this.state.recommendations}/>`

Now replace the contents of **components/sideCard.jsx** with the following and **save the file sideCard.jsx**:

```
import React, { Component, Fragment } from "react";
import {
  Button,
  UncontrolledAlert,
```

```
    Card,
    CardBody,
    CardTitle,
    CardSubtitle,
    Container,
    Row,
    Col
  } from "reactstrap";

  class SideCard extends Component {
    state = {};

    getTotal = items => {
      var totalPrice = 0;
      for (var i in items) {
        var qty = items[i]["quantity"];
        var price = items[i]["unitPrice"];
        var qtyPrice = qty * price;
        totalPrice += qtyPrice;
      }
      return totalPrice.toFixed(2);
    };

    getItems = cOrder => {
      if (cOrder && cOrder.items) {
        return cOrder.items.items;
      } else {
        return null;
      }
    };

    hasRecommendation() {
      if (this.props.Recommendations && this.props.Recommendations[0])
        return true;
      return false;
    }

    render() {
      const localItems = this.getItems(this.props.currentOrder);
      return (
        <Fragment>
          <UncontrolledAlert color="primary" className="d-none d-lg-block">
            <strong>Recommended for you!</strong>
            <br />
            {this.hasRecommendation() ? (
              <Fragment>
                <b>{this.props.Recommendations[0].productName}</b>
                <br></br>
                {this.props.Recommendations[0].description}
                <br></br>
                <Button
```

```
                color="success"
                onClick={() =>
                  this.props.onHandleAddSpecial
                    ? this.props.onHandleAddSpecial(
                        this.props.Recommendations[0]
                      )
                    : null
                }
              >
                Add this to Order
              </Button>
            </Fragment>
          ) : null}
        </UncontrolledAlert>

        <Card>
          <CardBody>
            <CardTitle className="h3 mb-2 pt-2 font-weight-bold text-
secondary">
              Your Current Cart
            </CardTitle>
            <CardSubtitle
              className="text-secondary mb-2 font-weight-light text-
uppercase"
              style={{ fontSize: "0.8rem" }}
            >
              Total: ${this.getTotal(localItems)}
            </CardSubtitle>
            <div
              className="text-secondary mb-4"
              style={{ fontSize: "0.75rem" }}
            >
              <Container>
                <Row className="font-weight-bold">
                  <Col>Item Name</Col>
                  <Col>Options</Col>
                  <Col>Price</Col>
                </Row>
                {localItems
                  ? localItems.map(orderInfo => (
                      <Row key={orderInfo.id}>
                        <Col>{orderInfo.itemName}</Col>
                        <Col>Qty: {orderInfo.quantity}</Col>
                        <Col>{orderInfo.totalPrice}</Col>
                      </Row>
                    ))
                  : null}
              </Container>
            </div>
            <Button
              color="success"
```

```
                  className="font-weight-bold"
                  onClick={() =>
                    this.props.onHandleCheckout
                      ? this.props.onHandleCheckout()
                      : null
                  }
                >
                  Checkout
                </Button>
              </CardBody>
            </Card>


            <br />
            <Button
              color="info"
              onClick={() =>
                this.props.onHandleChat ? this.props.onHandleChat() : null
              }
            >
              Chat to Order!
            </Button>
          </Fragment>
        );
      }
    }

    export default SideCard;
```

The above code looks up the recommended product ID and displays it along with an option for the user to add it to the cart.

Now, you can login as a few different users to see different recommendations in your side column.

Note

To create new users, simply **Log Out** of the web application and then create a new account. Specifically, you should create the following usernames:

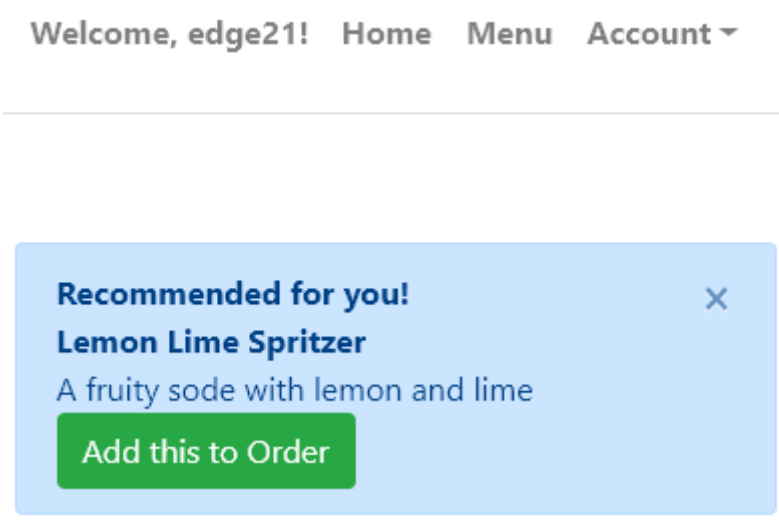
- hair54
- everybody63
- subject91

Once you create the additional users, login as those users to see different recommendations in the side column.

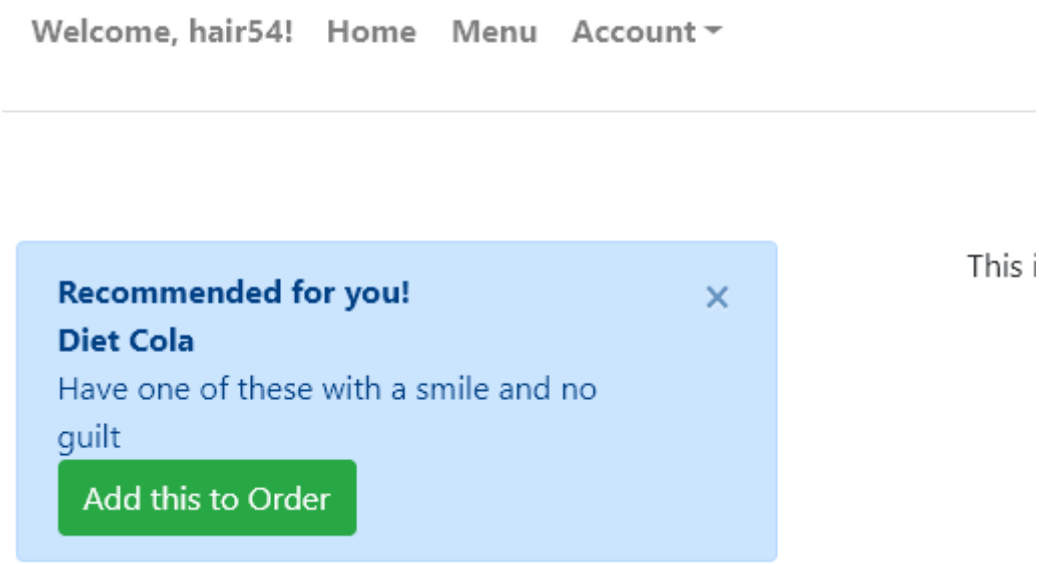
Note

You may need to **reload the app** to see the new recommendations after logging in with a different user.

Logged in with user edge21



Logged in with user hair54



That completes the AI portion of the workshop.