i-SHOP

(Smart Shopping)

Abstract:

Existing system of shopping where normally customer need to physically go to the retail shop and buy the products that customers want. Online shopping is an easy and comfortable way of shopping from a large range of products at home. It understands customer buying habits and traits to predict future trends.

Existing System:

Existing system of shopping where normally customer need to physically go to the retail shop and buy the products that customers want.

- Customer Needs to visit the retail store physically.
- Enquire for products availability.
- Have to wait in the queue if have lot of customers.
- Search for product in the store physically.
- Need to make a purchase requisition.

Draw Backs:

- Customer needs to allocated time physically to visit the store.
- Unable to find products easily.
- Unable to filter products by price range.
- Wait for billing.

Proposed System:

Online shopping is an easy and comfortable way of shopping from a large range of products. It allows customers to view, search and buy products from home using internet.

Advantages:

- Customer need not to visit the store physically.
- He can browse a large range of products from various vendors.
- Can make payments online, billing processes will be easy.
- It saves the purchasing time for customer.

Modules in I-Shop

1. **Registration Module**
   It allows users and customers to register on the i-shop website in order to use it.
2. **Products Browse and Products Search Module**
   Allow the customers easy access to search the website for their preferred products.
3. **Shopping Cart Module**
   Has multiple currency capability to allow customers to use the website in their preferred currency.
4. **Shipping and Billing**
   Allows the vendor to control the amount of shipping charges.
5. **Payment**
   Allows the customer many methods to make payments.
6. **Admin [User, Catalog, Order] Management**
   Allow the admin of i-shop model to manage, control and monitor the overall website in a seamless manner.

State Transition Diagram

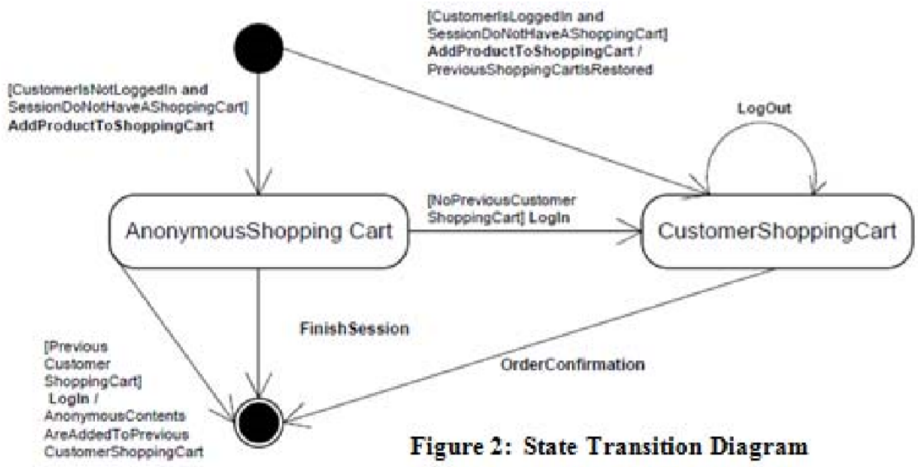


Figure 2: State Transition Diagram

System Configuration

Hardware Configuration

S.NO	HARDWARE	CONFIGURATIONS
1	Operating System	Windows 7 or Above
2	RAM	2GB
3	Processor Speed	Intel Pentium IV (3.0 GHz) and Upwards
4	Hard Disk Space	40GB
5	Monitor	14’ CRT

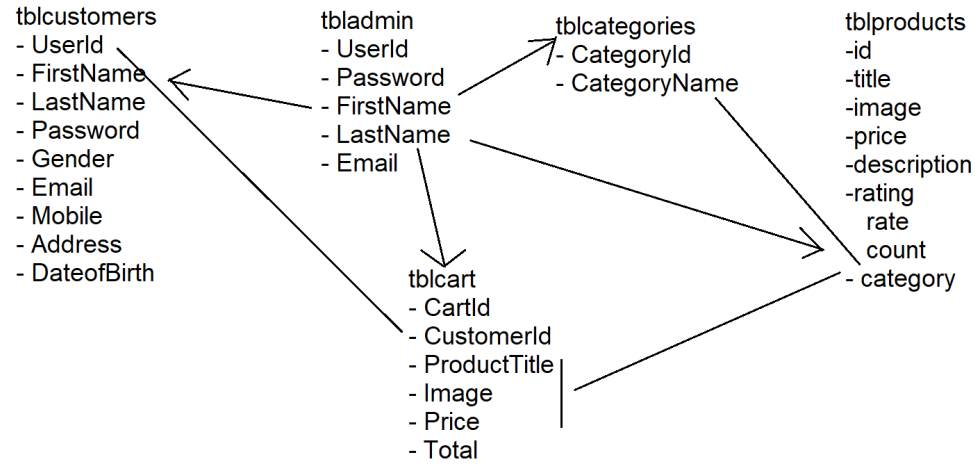
Software Configuration

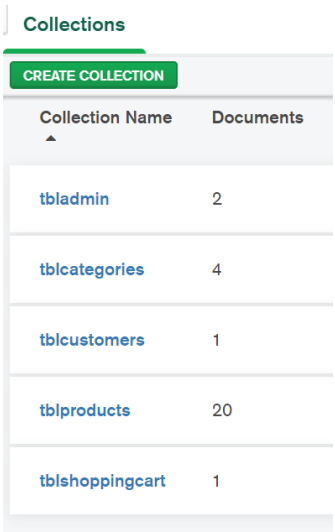
S.NO	SOFTWARE	CONFIGURATIONS
1	Mark Up Language	HTML
2	Style Sheets	CSS
3	Client Side	JavaScript, Jquery, React JS
4	Server Side	Node JS
5	Database	MongoDb
6	Middleware	Express
7	CMS [IDE]	Visual Studio Code
8	Web Server	Internet Information Services Manager (IIS)
9	Browser	Chrome, Edge, Internet Explorer, Safari, FireFox

Data Models

1. Conceptual Model
   Specifies the modules required with data.
   Customer Registration and Login
   Products and Categories
   Admin Registration and Login
   Shopping Cart
2. Physical Model
   Specifies the table name, field name and data type
3. Logical Model
   Specifies the relationship between modules
4. Entity Model
   Specifies the table, field, data type and relation.

Database Name: ishopdb





Create API using Express and Node.js

- Install following libraries
  > npm install mongodb --save
  > npm install express --save
  > npm install cors --save
- Add a new File “index.js”

Index.js

```
const express = require('express');

const mongoClient = require('mongodb').MongoClient;

const cors = require('cors');


const connectionString = 'mongodb://127.0.0.1:27017';
```

```
const app = express();


app.use(express.urlencoded({
   extended: true
}));
app.use(express.json());
app.use(cors());


app.get('/products', (req, res)=> {
   mongoClient.connect(connectionString, function(err, clientObject){
      if(!err){
         const dbo = clientObject.db('ishopdb');
         dbo.collection('tblproducts').find({}).toArray(function(err, documents){
            if(!err){
               res.send(documents);
            }
         })
      }
   })
});
app.get('/products/:id', (req, res)=> {
   mongoClient.connect(connectionString, function(err, clientObject){
      if(!err){
         const dbo = clientObject.db('ishopdb');
         dbo.collection('tblproducts').find({id:parseInt(req.params.id)}).toArray(function(err,
documents){
            if(!err){
               res.send(documents);
            }
         })
```

```
        }
    });
});

app.get('/categories', (req, res)=> {
    mongoClient.connect(connectionString, function(err, clientObject){
        if(!err){
            const dbo = clientObject.db('ishopdb');
            dbo.collection('tblcategories').find({}).toArray(function(err, documents){
                if(!err){
                    res.send(documents);
                }
            })
        }
    });
});
app.get('/categories/:category', (req, res)=>{
    mongoClient.connect(connectionString, function(err, clientObject){
        if(!err){
            const dbo = clientObject.db('ishopdb');
            dbo.collection('tblproducts').find({category:req.params.category}).toArray(function(err,
documents){
                if(!err){
                    res.send(documents);
                }
            })
        }
    });
});

app.get('/getcustomers', (req, res)=>{
```

```
    mongoClient.connect(connectionString, function(err, clientObject){
        if(!err){
            const dbo = clientObject.db('ishopdb');
            dbo.collection('tblcustomers').find({}).toArray(function(err, documents){
                if(!err){
                    res.send(documents);
                }
            })
        }
    });
});

app.get('/getadmin', (req, res)=>{
    mongoClient.connect(connectionString, function(err, clientObject){
        if(!err){
            const dbo = clientObject.db('ishopdb');
            dbo.collection('tbladmin').find({}).toArray(function(err, documents){
                if(!err){
                    res.send(documents);
                }
            })
        }
    });
});




app.post('/adminregister', (req, res)=>{
    mongoClient.connect(connectionString, function(err, clientObject){
        if(!err){
```

```
        const dbo = clientObject.db('ishopdb');
        var data = {
            UserId:req.body.UserId,
            FirstName:req.body.FirstName,
            LastName: req.body.LastName,
            Password: req.body.Password
        }
        dbo.collection('tbladmin').insertOne(data, function(err, result){
            if(!err) {
                console.log('Record Inserted');
            }
        })
    }
  });
})

app.post('/customerregister', (req, res)=>{
  mongoClient.connect(connectionString, function(err, clientObject){
    if(!err){
        const dbo = clientObject.db('ishopdb');
        var data = {
            UserId: req.body.UserId,
            FirstName: req.body.FirstName,
            LastName: req.body.LastName,
            DateOfBirth: new Date(req.body.DateOfBirth),
            Email: req.body.Email,
            Gender: req.body.Gender,
            Address: req.body.Address,
            PostalCode: req.body.PostalCode,
            State:req.body.State,
            Country: req.body.Country,
```

```
            Mobile: req.body.Mobile,
            Password: req.body.Password
        }
        dbo.collection('tblcustomers').insertOne(data, function(err, result){
            if(!err) {
                console.log('Record Inserted');
            }
        })
    }
  });
})
app.listen(8080);
console.log(`Server Listening : http://127.0.0.1:8080`);
```

API Requests

Http Verb	Request	Description
GET	/products	Returns all products data
GET	/products/1	Returns specific product details by id
GET	/categories	Returns all categories
GET	/categories/electronics	Returns products belong to specific category.
GET	/getcustomers	Returns all customers data.
GET	/getadmin	Returns all admin data.
POST	/adminregister	Inserts data into admin table.
POST	/customerregister	Inserts data into customers table.

Front End React Application

- **Create a new React Application**
  > npx create-react-app ishop-project
- **Install the following libraries**
  > npm install formik --save
  > npm install yup --save
  > npm install axios --save
  > npm install react-router-dom --save
  > npm install react-cookie –save
  > npm install bootstrap --save
  > npm install bootstrap-icons --save

IndexComponent.js

```
import React, { useEffect, useState } from 'react';
import axios  from 'axios';
import { BrowserRouter as Router, Route, Link, Switch, Redirect, useParams, useHistory } from 'react-router-dom';
import { useFormik } from 'formik';
import { useCookies } from 'react-cookie';



const RegisterAdmin = () => {
   const [adminUsers, setAdminUsers] = useState([]);
   const [msg, setMessage] = useState('');
   const history = useHistory();

   useEffect(() => {
     axios.get('http://127.0.0.1:8080/getadmin')
     .then(res=> {
        setAdminUsers(res.data);
     })
   }, []);

   const formik = useFormik({
      initialValues: {
         UserId: '',
         FirstName: '',
         LastName: '',
         Password: ''
      },
      onSubmit: values => {
         axios.post('http://127.0.0.1:8080/adminregister', values);
         alert('Registered Successfully..');
         history.push('/adminlogin');
```

```
    }
  })

  function VerifyUserId(e){
    for(var user of adminUsers)
    {
      if(user.UserId===e.target.value) {
        setMessage('User Name Taken : Try Another');
        break;
      } else {
        setMessage('User Name Available');
      }
    }
  }

  return(
    <div className="w-50">
      <form onSubmit={formik.handleSubmit} >
        <h3>Admin Register</h3>
        <dl>
          <dt>User Id</dt>
          <dd>
            <input type="text" onKeyUp={VerifyUserId} onChange={formik.handleChange}
name="UserId" value={formik.values.UserId} />
          </dd>
          <dd>{msg}</dd>
          <dt>First Name</dt>
          <dd>
            <input type="text" onChange={formik.handleChange} name="FirstName"
value={formik.values.FirstName} />
          </dd>
          <dt>Last Name</dt>
```

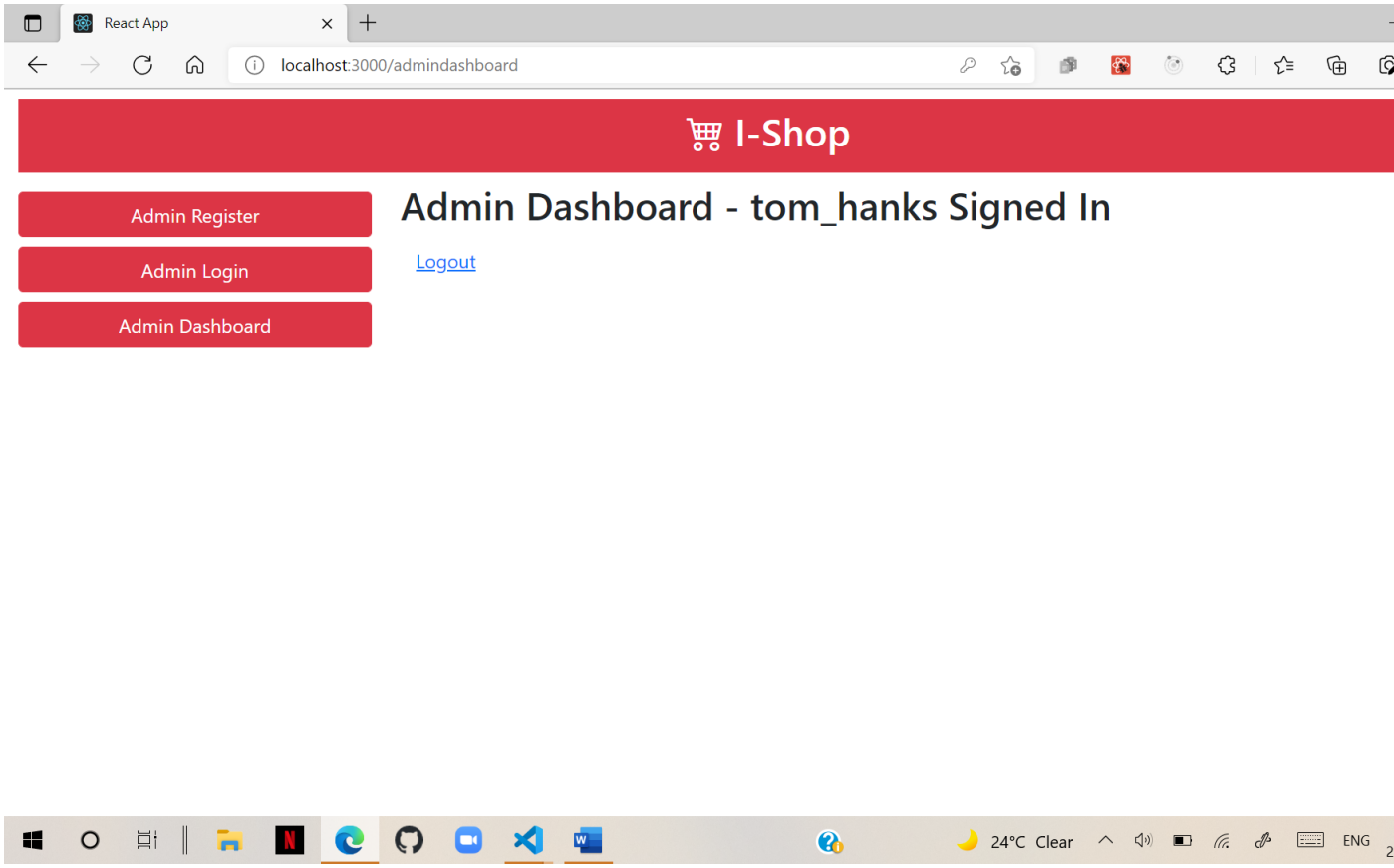
```
                <dd>
                    <input type="text" onChange={formik.handleChange} name="LastName"
value={formik.values.LastName}  />
                </dd>
                <dt>Password</dt>
                <dd>
                    <input type="password" onChange={formik.handleChange} name="Password"
value={formik.values.Password}  />
                </dd>
            </dl>
            <button className="btn btn-primary">Register</button>
            <div className="mt-2">
            Existing User <Link to="/adminlogin" className="btn btn-link"> Login</Link>
            </div>
        </form>
    </div>
  )
}

const LoginComponent = () => {
  const [users, setUsers] = useState([]);
  const [msg, setMsg] = useState('');
  const [userdetails, setUserDetails] = useState({UserId:'', Password:''});
  const history = useHistory();
  const [cookies, setCookie] = useCookies(['userid']);

  useEffect(() => {
    axios.get('http://127.0.0.1:8080/getadmin')
    .then(res=>{
      setUsers(res.data);
    })
  }, []);
```

```
function handleUserId(e){
    setUserDetails({
        UserId: e.target.value,
        Password: userdetails.Password
    })
}

function handlePassword(e) {
    setUserDetails({
        UserId: userdetails.UserId,
        Password: e.target.value
    })
}

function handleLogin(){
    for(var user of users)
    {
        if(user.UserId==userdetails.UserId  && user.Password==userdetails.Password){
            setCookie('userid', userdetails.UserId, {path:'/'})
            history.push('/admindashboard');
        } else {
            setMsg('Invalid Credentials - Try Again');
        }
    }
}

return(
    <div className="w-50">
        <h2>Admin Login</h2>
        <dl>
```

```
            <dt>User Id</dt>
            <dd><input type="text" onChange={handleUserId}  /></dd>
            <dt>Password</dt>
            <dd><input type="password" onChange={handlePassword} /></dd>
          </dl>
          <button onClick={handleLogin} >Login</button>
          <h3>{msg}</h3>
          <div>
            New User ? <Link to="/adminregister">Register</Link>
          </div>
        </div>
    )

}

const AdminDashBoard = () => {
    const [cookies, setCookie, removeCookie] = useCookies(['userid']);
    const [username, setUserName] = useState('');
    const history = useHistory();

    useEffect(() => {
        if(cookies.userid==undefined) {
            history.push('/adminlogin');
        } else {
            setUserName(cookies.userid);
        }
    }, []);

    function handleLogout(){
        removeCookie('userid');
        history.push('/adminlogin');
```

```
    }

    return(
      <div>
        <h2>Admin Dashboard - {cookies.userid} Signed In </h2>
        <button onClick={handleLogout} className="btn btn-link">Logout</button>
      </div>
    )
}

export default class IndexComponent extends React.Component
{
    render(){
      return(
        <div className="container-fluid">
          <Router>
            <header className="bg-danger text-white text-center p-2 mt-2">
              <h2><span className="bi bi-cart4"></span> I-Shop </h2>
            </header>
            <div className="mt-2 row">
              <div className="col-3">
                <div className="mt-2">
                <Link className="btn btn-danger w-100" to="/adminregister" >
                    Admin Register
                </Link>
                </div>
                <div className="mt-2">
                <Link className="btn btn-danger w-100" to="/adminlogin" >
                    Admin Login
                </Link>
                </div>
```

```
                    <div className="mt-2">
                    <Link className="btn btn-danger w-100" to="/admindashboard" >
                      Admin Dashboard
                    </Link>
                    </div>
                  </div>
                  <div className="col-9">
                    <Switch>
                      <Route exact path="/adminregister" >
                        <RegisterAdmin />
                      </Route>
                      <Route exact path="/adminlogin">
                        <LoginComponent />
                      </Route>
                      <Route exact path="/admindashboard" >
                        <AdminDashBoard />
                      </Route>
                    </Switch>
                  </div>
                </div>
              </Router>
            </div>
        )
    }
}
```


React App
localhost:3000/admindashboard
I-Shop
Admin Register
Admin Login
Admin Dashboard
Admin Dashboard - tom_hanks Signed In
Logout