1. **How to create project plan and product backlog for project and User story creation.**

* Open browser, search for Jira Login.
* Continue with your Gmail account or login to Jira.
* Click on Jira software and select project from top menu bar then select create project from dropdown Menu.
* Select Scrum click on template and click on create.
* Give a name to your project and Give a Description if you want .
* Click on create.
* Select issues from top menu bar and select issue type .This will be default setting.
* Give a summary to your project.
* Now write a user story in Description box.
* Your story will then go into the backlog to be Assigned and auctioned by the project manager, product owner or other relevant stakeholders and click on start sprint
* Click on Board and select Insights
* Click on Insights and click “Sprint burn down”
* And click on Learn more.

1. **Create and manage product backlog using appropriate tool like Jira**

**Summary: Customer registration functionality**

**Description**

AS A customer

I WANT to have registration functionality

SO THAT I can successfully resist

**Scope**

* build a registration page
* customer validation
* customer should be able to change the phone number
* it should work in all the browser
* it should also work in mobile

**Pre condition**

* customer should have email and phone number

**Acceptance criteria**

**Scenario 1:** customer can successfully resister

* “Given” I am on registration page
* “And” I give valid customer name and phone number
* “And” I check on sing in
* “Then” I will successfully resister

**Scenario 2:** customer cannot successfully resister

* “Given” I am on registration page
* “And” I give invalid customer name and phone number
* “Then” I will get a error message as “registration failed incorrect customer name”

**Summary: Customer checking availability**

**Description**

AS A customer

I WANT to have checking available of hall

SO THAT i can check the available halls

**Scope**

* build a available checking page
* it should be only inside the Karnataka
* customer should be able to check the available halls in their particular location

**pre condition**

* customer should have nearest halls in their location

**Acceptance criteria**

**Scenario 1:** Customers can successful check availability of hall in their location

* “Given “ I am on check available of hall page
* “And” I give particular location and date

**Scenario 2:** customer can’t successfully check availability of hall in their location

* “Given “ I am on check available of hall page
* “And” I give wrong location
* “Then” I will get the error message as in valid location

**Summary: Customer booking hall**

**Description**

Top of Form

Top of Form

AS A customer

I WANT to booking hall

SO THAT i can book the hall

**Scope**

* build a booking hall page
* customer should be able to change the date and location

**Pre condition**

* customer should be able to book the hall in their particular date

**Acceptance criteria**

**Scenario 1:** customer can successfully booking hall

* “Given” I am on booking page
* “And” I give available date time
* “And” I will book the hall
* “Then” I successfully booked the hall

**Scenario 2:** customer can’t successfully booking hall

* “Given” I am on booking page
* “And” I give invalid date and time
* “Then “I will get the error messages as their hall is already booked
* Bottom of Form

**Summary: Customer booking details**

**Description:**

AS A customer

I WANT to block the hall

SO THAT I can get the booking details

**Scope**

* build a booking details page
* it should be able to see after the booking also
* customer should be able to change details if their want

**Pre condition**

* customer have to fill the every information given in the booking details

**Acceptance criteria**

**Scenario 1:** customer can successfully get the booking details

* “Given” I am on the booing details page
* “And” I fill the details
* “And” I have also blocked the hall
* “Then” I will successfully get the booing details

**Scenario 2:** customer will not get the booking details

* “Given” I am on the booking details page
* “And” I will fill the details without blocking hall
* “Then” I will get a error message as the hall is not blocked yet

1. **Create Sprint 1 with required user stories**

**Note:** Create user story for required topic and follow the steps below.

* Give a summary to your project.
* Now write a user story in Description box.
* Your story will then go into the backlog to be Assigned and auctioned by the project manager, product owner or other relevant stakeholders and click on start sprint
* Click on Board and select Insights
* Click on Insights and click “Sprint burn down” And click on Learn more.

1. **Create UI/UX design - for created user stories (wire framing).**

* Continue with your Gmail account or login to Figma.
* First create design file
* And adding elements to over design file from figma community
* Click on**“ # ”**  button on the tool menu at the (Top left)
* Depends on which size you want to use choose the screen size from the right sidebar.
* Add background color to the frame by clicking it and add color from the “Fill” section in the (right panel).
* Create text button (click on “T” text button from the (Top left)
* Click on rectangle**“⬜ ”** button to select image from the popup menu at the (Top left)

1. **Create repository – named mini project-1 Push and pull operation in GitHub.**

* Browse to the official Git website: <https://git-scm.com/downloads>
* Click the download link for Windows and allow the download to complete.
* Double-click the file to extract and launch the installer.

**Git operations**

#### Creating a repository

* Open browser, search for GitHub Login.
* Sign in with your username and password
* In the upper-right corner, use the drop-down menu, and select **New repository**.
* Give a name for your repository. For example, "hello-world".
* Add a description of your repository. For example, "Mini Project I"
* Click **Create repository**.

**Push Operation:**

* Go to add files and select upload files.
* Choose your files then select a file or folder click on open.
* Click on commit changes.

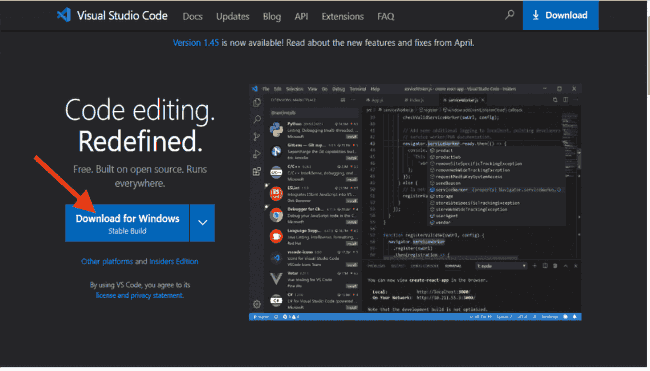
**Clone or pull operation:**

* Click on code dropdown button
* Click on Download Zip

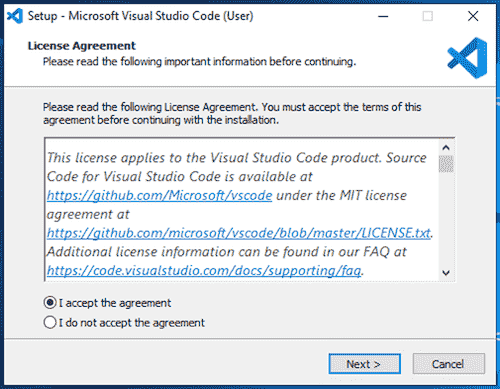
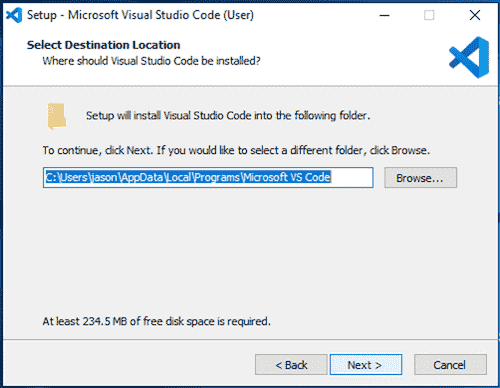
1. **Setting Up the Environment and Tools for front end development Installing VS Code**

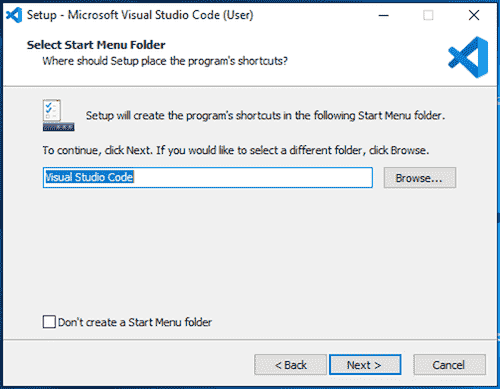
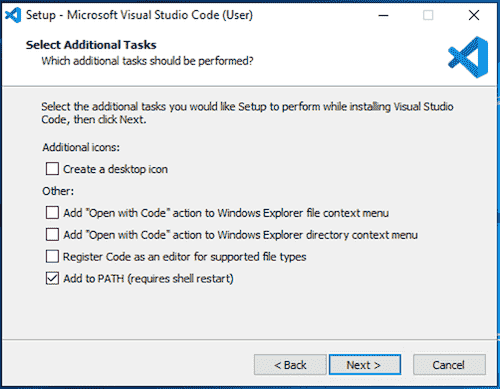
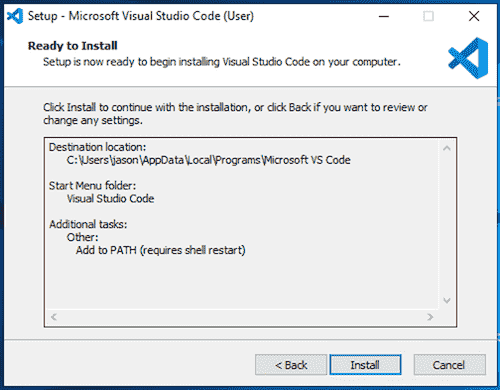
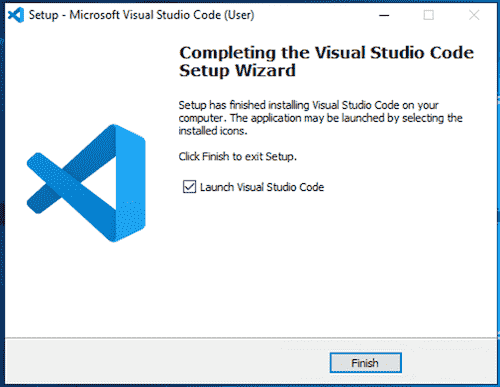
VS Code is a free code editor that runs on Windows, Mac and Linux.

Download VS Code from <https://code.visualstudio.com/>.



Install Visual Studio Code by opening the downloaded setup file and following the prompts.

1. **Create a form like registration form or feedback form, after submit hide create form and enable the display section using java script.**

**Registration.html**

<html> <head>

<title> Registration Form</title>

<script>

function passvalues()

{

var name = document.getElementById("name").value;

var email = document.getElementById("email").value;

var address = document.getElementById("address").value;

localStorage.setItem("name",name);

localStorage.setItem("email",email);

localStorage.setItem("address",address);

return;

}

</script>

</head>

<body>

<h1>Registrtion Form</h1>

<form action="Details.html">

<fieldset>

<legend>Registration</legend>

<label> Name </label>

<input type="text" id="name"/><br><br>

<label> Email ID </label>

<input type="email" id="email"/><br><br>

<label> Address </label>

<input type="address" id="address"/><br><br>

<input type="submit" value="submit" onclick="passvalues()"/>

</fieldset>

</form>

</body>

</html>

**Details.html**

<html>

<head>

<title> Details</title>

</head>

<body>

<form>

Your Name is:<p id="name"></p><br>

Your email is:<p id="email"></p><br>

Your address is:<p id="address"></p>

<script>

document.getElementById("name").innerHTML = localStorage.getItem("name");

document.getElementById("email").innerHTML = localStorage.getItem("email");

document.getElementById("address").innerHTML = localStorage.getItem("address");

</script>

</form>

</body>

</html>

1. **Create form validation using JavaScript**

**Index.html**

<html>

<body>

<script>

function validateform(){

var name=document.myform.name.value;

var password=document.myform.password.value;

if (name==null || name==""){

alert("Name can't be blank");

return false;

}else if(password.length<6){

alert("Password must be at least 6 characters long.");

return false;

}

}

</script>

<body>

<form name="myform" method="post" action="valid.html" onsubmit="return validateform()" >

Name: <input type="text" name="name"><br/>

Password: <input type="password" name="password"><br/>

<input type="submit" value="register">

</form>

</body>

</html>

**valid.html**

<html>

<body>

<h1>Validation Successfull</h1>

</body>

</html>

1. **Create and run simple program in TypeScript**

### Install TypeScript using Node.js Package Manager (npm)

**Step-1** Install Node.js. It is used to setup TypeScript on our local computer.

To install Node.js on Windows, go to the following link: [**https://www.javatpoint.com/install-nodejs**](https://www.javatpoint.com/install-nodejs)

**Step-2** Install TypeScript. To install TypeScript, enter the following command in the Terminal Window.

* npm install typescript --save-dev         //As dev dependency
* npm install typescript -g                      //Install as a global module

or

* npm install -g typescript
* npm install typescript@latest -g          //Install latest if you have an older version

**Step-3** To verify the installation was successful, enter the command **$ tsc -v** in the Terminal Window.

**Install Live server**

npm install -g live-server

1. **Create and run first program in TypeScript**

* open command prompt
* go to d: drive(any drive)
* d:\>mkdir typescript
* d:\>cd typescript
* d:\typescript> npm install typescript --save-dev
* open visual studio code
* file-open folder-choose typescript folder from d:
* create new file- save it as types.ts(any name.ts)
* Write the below code and save it
* console.log("Hello World");
* go to command prompt and compile the program
* tsc types.ts
* run the program
* node types.js
* Observe the output

1. **Forms - Use of HTML tags in forms like select, input, file, textarea, etc.**

<html>

<head>

<title>Form Elements</title>

</head>

<body>

<form>

<lable>Text Box</lable>

<input type="text" id="t1" name="name" value=""/><br><br>

Radio Button: <br>

<input type="radio" id="r1" name="" value=""/>Male<br> <br>

<input type="radio" id="r1" name="" value=""/>FeMale<br><br>

Check Box:<input type="checkbox" id="c1" name="" value=""/><br><br>

File:<input type="file" id="e1" name="file" value=""/><br><br>

Select:<br>

<label>Sem</label>

<select name="sem" id="sem">

<option value="1">1 Sem</option>

<option value="2">2 Sem</option>

</select><br><br>

Text Area:<br>

<textarea id="ta1" name="textarea" rows="4" cols="50">

At w3schools.com you will learn how to make a website.

</textarea><br><br>

<fieldset>

<legend>Personal Details:</legend>

<label>First name:</label>

<input type="text" id="fname" name="fname"><br><br>

<label>Last name:</label>

<input type="text" id="lname" name="lname"><br><br>

</fieldset><br><br>

Button:<input type="button" id="t1" name="" value="Submit"/><br>

</form>

</body>

</html>

1. **Testing single page application (Registration form) using React**.

**Index.js**

import React from 'react';

import ReactDOM from 'react-dom/client';

import './index.css';

import Home from './Home';

import reportWebVitals from './reportWebVitals';

const root = ReactDOM.createRoot(document.getElementById('root'));

root.render(

  <React.StrictMode>

    <Home />

  </React.StrictMode>

);

**App.css**

.input {

  width: 30%;

  padding: 12px 20px;

  margin: 8px 0;

  display: inline-block;

  border: 1px solid #ccc;

  border-radius: 4px;

  box-sizing: border-box;

}

**Home.js**

import { useState } from 'react';

import './App.css';

export default function Form()

{

// States for registration

const [name, setName] = useState('');

const [email, setEmail] = useState('');

const [password, setPassword] = useState('');

const [submitted, setSubmitted] = useState(false);

const handleName = (e) => {

    setName(e.target.value);

};

const handleEmail = (e) => {

    setEmail(e.target.value);

};

const handlePassword = (e) => {

    setPassword(e.target.value);

};

const handleSubmit = (e) => {

    e.preventDefault();

    if (name === '' || email === '' || password === '') {

    alert("Please enter all the fields");

    } else {

    setSubmitted(true);

    }

};

// Showing success message

const successMessage = () => {

    if(submitted)

    return (

    <div className="success" >

        <h1>User {name} successfully registered!!</h1>

    </div>

    );

};

return (

    <div className="form">

    <div>

        <h1>User Registration</h1>

    </div>

    {/\* Calling to the methods \*/}

    <div className="messages">

        {successMessage()}

    </div>

    <form>

    <fieldset>

        {/\* Labels and inputs for form data \*/}

        <label className="label">Name</label>

        <input onChange={handleName} className="input" value={name} type="text" /><br></br>

        <label className="label">Email</label>

        <input onChange={handleEmail} className="input" value={email} type="email" /><br></br>

        <label className="label">Password</label>

        <input onChange={handlePassword} className="input" value={password} type="password" /><br></br>

        <button onClick={handleSubmit} className="btn" type="submit">

        Submit

        </button>

        </fieldset>

    </form>

    </div>

);

}

1. **Implement navigation using react router**

**Add React Router**

* To add React Router in your application, run this in the terminal from the root directory of the application:

npm i -D react-router-dom

**Index.js**

import ReactDOM from "react-dom/client";

import { BrowserRouter, Routes, Route } from "react-router-dom";

import Layout from "./pages/Layout";

import Home from "./pages/Home";

import Blogs from "./pages/Blogs";

import Contact from "./pages/Contact";

import NoPage from "./pages/NoPage";

export default function App() {

  return (

    <BrowserRouter>

      <Routes>

        <Route path="/" element={<Layout />}>

          <Route index element={<Home />} />

          <Route path="blogs" element={<Blogs />} />

          <Route path="contact" element={<Contact />} />

          <Route path="\*" element={<NoPage />} />

        </Route>

      </Routes>

    </BrowserRouter>

  );

}

const root = ReactDOM.createRoot(document.getElementById('root'));

root.render(<App />);

**Create a folder name called pages. Within a pages create following files.**

**Blogs.js**

const Blogs = () => {

    return <h1>Blog Articles</h1>;

  };

    export default Blogs;

**Contact.js**

const Contact = () => {

    return <h1>Contact Me</h1>;

  };

  export default Contact;

**Home.js**

const Home = () => {

    return <h1>Home</h1>;

  };

  export default Home;

**Layout.js**

import { Outlet, Link } from "react-router-dom";

const Layout = () => {

  return (

    <>

      <nav>

        <ul>

          <li>

            <Link to="/">Home</Link>

          </li>

          <li>

            <Link to="/blogs">Blogs</Link>

          </li>

          <li>

            <Link to="/contact">Contact</Link>

          </li>

        </ul>

      </nav>

      <Outlet />

    </>

  )

};export default Layout;

**NoPage.js**

const NoPage = () => {

    return <h1>404</h1>;

  };

    export default NoPage;

**App.css**

ul {

  list-style-type: none;

  margin: 0;

  padding: 0;

  overflow: hidden;

  background-color: #04AA6D;

}

li {

  float: left;

  border-right:1px solid #bbb;

}

li a {

  display: block;

  color: white;

  text-align: center;

  padding: 14px 16px;

  text-decoration: none;

}

li a:hover:not(.active) {

  background-color: #111;

}

1. **Build single page application (Add Product to Product List)**

**App.js**

import { useState } from "react";

import "./App.css";

function App() {

  const [list, setList] = useState([]);

  const [value, setValue] = useState("");

  const addToList = () => {

    let tempArr = list;

    tempArr.push(value);

    setList(tempArr);

    setValue("");

  };

 const deleteItem = (index) => {

 let temp = list.filter((item, i) => i !== index);

    setList(temp);

  };

  return (

    <div className="App">

        <fieldset>

        <h>Add Product to List</h><br></br>

    <input type="text" value={value} onChange={(e) => setValue(e.target.value)}/>

    <button onClick={addToList}> Click to Add </button><br></br><br></br>

    <h>Product Catalog</h><br></br>

    <ol>

        {list.map((item, i) => <li onClick={() => deleteItem(i)}>{item} </li>)}

    </ol>

    <h>Click on Product to Delete</h><br></br>

    </fieldset></div>

  );

}export default App;

**index.js**

import React from 'react';

import ReactDOM from 'react-dom/client';

import './index.css';

import App from './App';

import reportWebVitals from './reportWebVitals';

const root = ReactDOM.createRoot(document.getElementById('root'));

root.render(

  <React.StrictMode>

    <App/>

  </React.StrictMode>

);

1. **Build simple page application like shopping cart using ReactJS.**

**App.js**

import Header from "./Header";

import Products from "./Product";

import { useState } from "react";

import CartList from "./CartList";

function App() {

const [product, setproduct] = useState([

{

url:'imgs/lenovo.png',

name: 'lenovo ideapad Slim 3',

price: 57000

},

{

url: 'imgs/watch.png',

name: 'fastrack w98',

price: 1500

},

])

const [cart, setCart] = useState([])

const [showCart, setShowCart] = useState(false)

const addToCart = (data) => {

setCart([...cart, { ...data, quantity: 1 }])

}

const handleShow = (value) => {

setShowCart(value)

}

return (

<div >

<Header count={cart.length} handleShow={handleShow} />

{

showCart ?

<CartList cart={cart} /> :

<Products product={product} addToCart={addToCart} />

}

</div>

)

}

export default App;

**Product.js**

import React from 'react';

export default function Products({product,addToCart} ){

return (

<div className='flex'>{

product.map((productitem,productIndex)=>{

return(

<div>

<img src={productitem.url} width="20%" alt=""/>

<p>{productitem.name}</p>

<p>Rs.{ productitem.price}</p>

<button onClick={()=>addToCart(productitem)}>Add Cart</button>

</div>

)

})

}

</div>

)

}

**CarList.js**

import React,{useState,useEffect} from 'react';

function CartList({cart}) {

const [CART,setCART]= useState([])

useEffect(() => {

setCART(cart)

}, [cart])

return (

<div>

{

CART?.map((cartitem,cartindex)=>{

return(

<div>

<img src={cartitem.url} width={60} />

<span> {cartitem.name} </span>

<button onClick={()=>{

const \_CART= CART.map((item,index)=>{

return cartindex ===index? {...item,quantity:item.quantity>0?item.quantity-1:0}:item

})

setCART(\_CART)

}}>

- </button>

<span> {cartitem.quantity} </span>

<button onClick={()=>{

const \_CART= CART.map((item,index)=>{

return cartindex ===index? {...item,quantity:item.quantity+1}:item

})

setCART(\_CART)

}}>+ </button>

<span> Rs.{cartitem.price\* cartitem.quantity} </span>

</div>

)

})

}

<p>Total=<span>

</span>

{CART.map(item=>item.price\*item.quantity).reduce((total,value)=>total+value,0)}

</p>

</div>

)

}

export default CartList;

**Header.js**

import React from 'react'

export default function Header(props) {

return (

<div>

<div onClick={()=>props.handleShow(false)}>ShoppingCart</div>

<div onClick={()=>props.handleShow(true)}> Cart

<sup>{props.count}</sup>

</div>

</div>

)

}

---------------------------------------------------

spring.security.user.name=niru

spring.security.user.password=niru

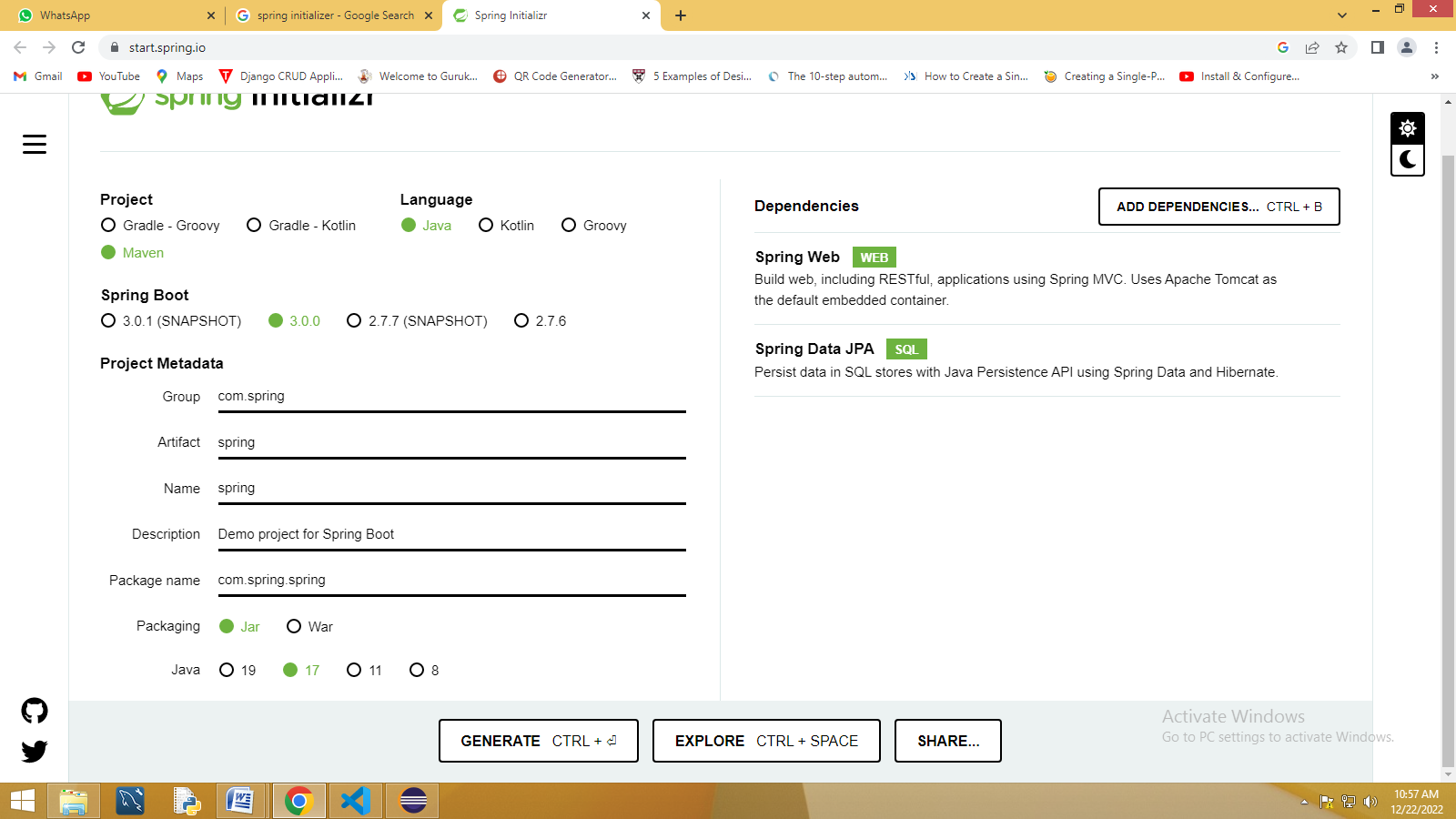
server.port=8090

----------------------------------------

1. **Create Spring application with Spring Initializer using dependencies like Spring Web, Spring Data JPA**

Step1: goto google and search for spring initialize. Visit <https://start.spring.io/> website

Step2: Choose project, language, spring Boot version. Add project metadata and dependencies as shown below



Step3: click on generate🡪goto downloan and extract the zip file.

Step4: Open Eclipse 🡪file🡪import🡪maven🡪existing maven project🡪next-🡪browse the extracted file🡪next🡪finish

Step5: Goto main Method🡪Right Click and Run as Spring Boot App

**Create REST controller for CRUD operations**

**Step 1:** Go to Eclipse🡪Help🡪Eclipse Marketplace🡪Find/Search for STS4(Spring Tool Suite4) and Install

**Step 2:** Click on **File -> New ->Project-> Spring Starter Project**

**Name: Springboot-first-app**

**Dependencies: Spring Web, Spring Data JPA, MySQL Driver**

**Step3: Create 3 Packages with the following names entity, controller and repository**

**Step4: Create User.java class under entity package, Usercontroller.java under controller package and** UserRepository.java **interface under repository package**

**Step4: Write the following Code**

**User.java**

**package com.example.demo.entity;**

**import jakarta.persistence.Entity;**

**import jakarta.persistence.GeneratedValue;**

**import jakarta.persistence.GenerationType;**

**import jakarta.persistence.Id;**

**import jakarta.persistence.Table;**

**@Entity**

**@Table(name="user")**

**public class User {**

**@Id**

**@GeneratedValue(strategy=GenerationType.AUTO)**

**private Long id;**

**private String firstname;**

**private String lasttname;**

**public Long getId() {**

**return id;**

**}**

**public void setId(Long id) {**

**this.id = id;**

**}**

**public String getFirstname() {**

**return firstname;**

**}**

**public void setFirstname(String firstname) {**

**this.firstname = firstname;**

**}**

**public String getLasttname() {**

**return lasttname;**

**}**

**public void setLasttname(String lasttname) {**

**this.lasttname = lasttname;**

**}**

**public User(Long id, String firstname, String lasttname) {**

**super();**

**this.id = id;**

**this.firstname = firstname;**

**this.lasttname = lasttname;**

**}**

**public User() {**

**}**

**}**

**UserRepository.java**

**package** com.example.demo.repository;

**import** org.springframework.data.jpa.repository.JpaRepository;

**import** org.springframework.stereotype.Repository;

**import** com.example.demo.entity.User;

@Repository

**public** **interface** UserRepository **extends** JpaRepository<User,Long>

{

}

**Usercontroller.java**

**package** com.example.demo.controller;

**import** java.util.List;

**import** java.util.Optional;

**import** org.springframework.beans.factory.annotation.Autowired;

**import** org.springframework.http.ResponseEntity;

**import** org.springframework.web.bind.annotation.DeleteMapping;

**import** org.springframework.web.bind.annotation.GetMapping;

**import** org.springframework.web.bind.annotation.PathVariable;

**import** org.springframework.web.bind.annotation.PostMapping;

**import** org.springframework.web.bind.annotation.PutMapping;

**import** org.springframework.web.bind.annotation.RequestBody;

**import** org.springframework.web.bind.annotation.RequestMapping;

**import** org.springframework.web.bind.annotation.RestController;

**import** com.example.demo.entity.User;

**import** com.example.demo.exception.ResourceNotFoundException;

**import** com.example.demo.repository.UserRepository;

@RestController

@RequestMapping("/users")

**public** **class** Usercontroller {

@Autowired

**private** UserRepository userRepository;

@GetMapping

**public** List<User> getAllUser()

{

**return** **this**.userRepository.findAll();

}

@GetMapping("/{id}")

**public** User getUserById(@PathVariable(value="id") **long** userId) {

**return** **this**.userRepository.findById(userId)

.orElseThrow(()-> **new** ResourceNotFoundException("UserNotFound"+userId));

}

@PostMapping

**public** User createUser(@RequestBody User user)

{

**return** **this**.userRepository.save(user);

}

@PutMapping("/{id}")

**public** User updateUser(@RequestBody User user,@PathVariable("id") **long** userId)

{

//return this.userRepository.save(user);

User ex=**this**.userRepository.findById(userId)

.orElseThrow(()-> **new** ResourceNotFoundException("UserNotFound"+userId));

ex.setFirstname(user.getFirstname());

ex.setLasttname(user.getLasttname());

**return** **this**.userRepository.save(ex);

}

@DeleteMapping("/{id}")

**public** ResponseEntity<User> deleteUser(@PathVariable("id") **long** userId)

{

User ex=**this**.userRepository.findById(userId).

orElseThrow();

**this**.userRepository.delete(ex);

**return** ResponseEntity.*ok*().build();

}

}

1. **Test created APIs with the help of Postman**

**Step1:** Download & Install postman from official website

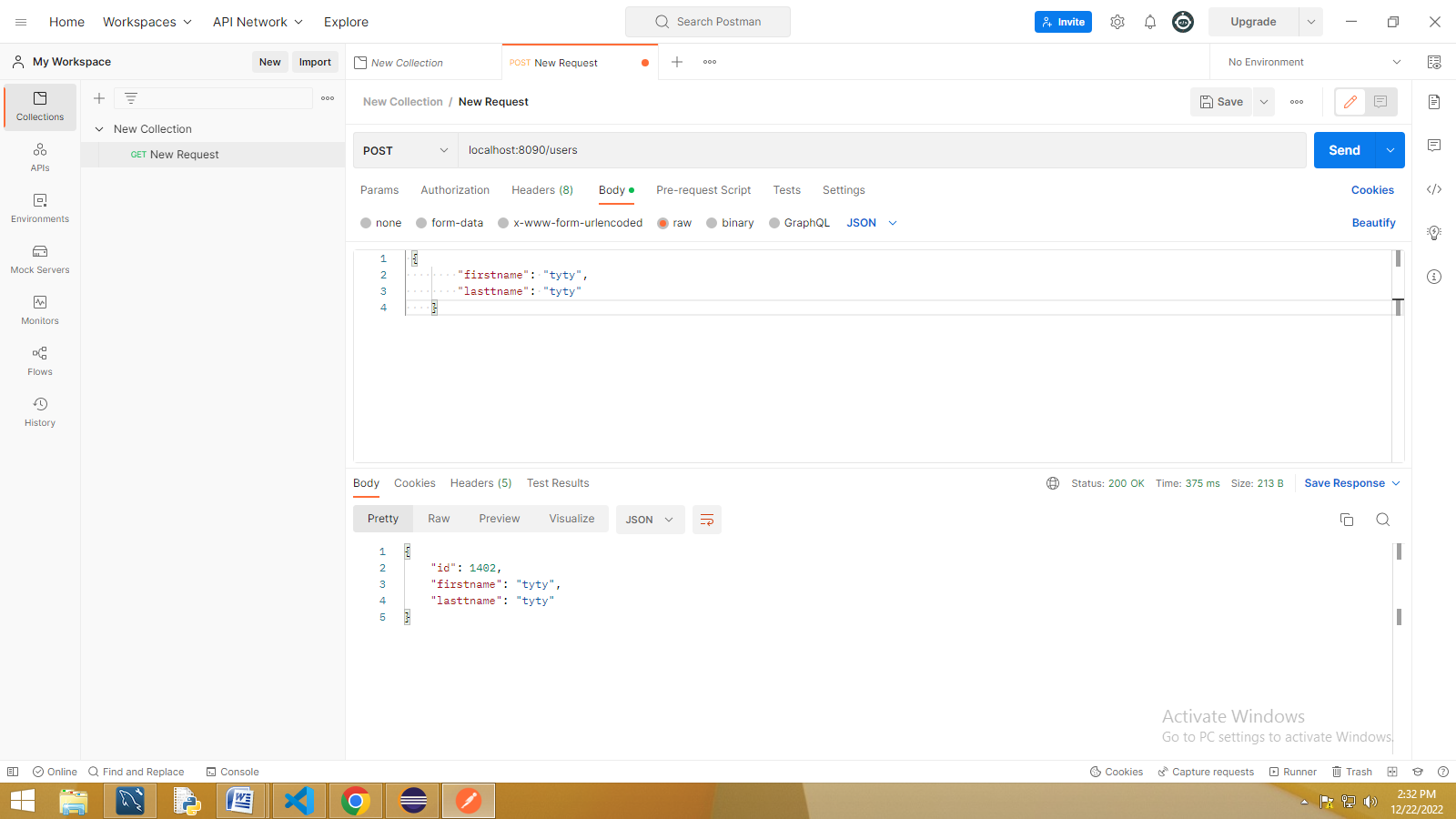
<https://www.postman.com/downloads/>

**Step2:** Click on Collection and Create Collection 🡪 Add Request

**Step3:** Demonstrate Get, Post, Put, Delete methods

**Get:** Select Get method from dropdown list and enter the URL [localhost:8090/users] 🡪 Send

**Post:** Select Post method from dropdown list 🡪 Click on Body, choose raw and select JSON from dropdown list and enter the URL [localhost:8090/users] 🡪 Give the input in the form of JSON and Click on Send



**Put:** Select Put method from dropdown list and enter the URL [localhost:8090/users/1]

Update the existing data by using primary key and Click on Send

**Delete:** Select Delete method from dropdown list and enter the URL [localhost:8090/users/1]

1. **Writing Junit test cases for CRUD operations**

Download JUnit from https://junit.org/junit4/

Goto download & install

Find Plain-old Jar & Download the following

* [junit.jar](https://search.maven.org/search?q=g:junit%20AND%20a:junit)
* [hamcrest-core.jar](https://search.maven.org/artifact/org.hamcrest/hamcrest-core/1.3/jar)
* Create a folder in any drive by giving relevant name, copy and paste both jar files to the folder.
* Create a project in eclipse
* Right click on project select build path, click on configure build path
* Select java build path, Click on Libraries and click on class path in libraries, go to Add External JAR’s, select junit.jar and hamcrest-core.jar files, click on apply and then apply and close.
* Goto src/test/java folder find default package and Testclass
* Write the below code

**package** com.example.demo;

**import** **static** org.assertj.core.api.Assertions.*assertThat*;

**import** **static** org.junit.Assert.*assertNotEquals*;

**import** **static** org.junit.Assert.*assertNotNull*;

**import** java.util.List;

**import** org.junit.jupiter.api.Test;

**import** org.springframework.beans.factory.annotation.Autowired;

**import** org.springframework.boot.test.context.SpringBootTest;

**import** com.example.demo.entity.User;

**import** com.example.demo.repository.UserRepository;

@SpringBootTest

**class** SpringbootFirstAppApplicationTests {

@Autowired

UserRepository userRepo;

@Test

**public** **void** testCreate()

{

User u=**new** User();

u.setId(3L);

u.setFirstname("Kavya");

u.setLasttname("shree");

userRepo.save(u);

*assertNotNull*(userRepo.findById(902L).get());

}

@Test

**public** **void** testReadAll()

{

List<User> list=userRepo.findAll();

*assertThat*(list).size().isGreaterThan(0);

}

@Test

**public** **void** testUpdate()

{

User u=userRepo.findById(2L).get();

u.setFirstname("Murthy");

userRepo.save(u);

*assertNotEquals*("Niranjan",userRepo.findById(902L).get().getFirstname());

}

@Test

**public** **void** testDelete()

{

userRepo.deleteById(2L);

*assertThat*(userRepo.existsById(852L)).isFalse();

}

}

**Note: Perform the junit test for Rest API CRUD operation**

1. **CRUD Operations on document using Mongo DB**

**Creating a Table.**

db.createCollection("student")

{ ok: 1 }

show tables

student

## insert() Method

To insert data into MongoDB collection, you need to use MongoDB's insert() or save() method.

### Syntax: db.COLLECTION\_NAME.insert(document)

### db.student.insert({"id":1,"name":"chandru","mark":300})

db.student.insertMany([{"id":1,"name":"chandru","mark":300},

{"id":2,"name":"suman","mark":290}])

**View data from Table.**

db.student.find({})

**Update.**

db.student.update({"name":"chandru"},{$set:{"name":"sekar",id:5}})

**Delete only one data.**

db.student.deleteOne({"name":"sekar"})

1. **Perform CRUD Operations on MongoDB through REST API using Spring Boot Starter Data MongoDB**

**Step 1:** Create a Spring Boot project.

**Step 2:** Add the following dependency

* Spring Web
* MongoDB
* Lombok
* DevTools

**Step 3:** Create 3 packages and create some classes and interfaces inside these packages

* entity
* repository
* controller

**Step 4:** Inside the entity package create a Book.java file.

package com.example.security.entity;

import lombok.AllArgsConstructor;

import lombok.Data;

import lombok.NoArgsConstructor;

import org.springframework.data.annotation.Id;

import org.springframework.data.mongodb.core.mapping.Document;

@Data

@NoArgsConstructor

@AllArgsConstructor

@Document(collection = "Book")

public class Book {

@Id

private int id;

private String bookName;

private String authorName;

public int getId() {

return id;

}

public void setId(int id) {

this.id = id;

}

public String getBookName() {

return bookName;

}

public void setBookName(String bookName) {

this.bookName = bookName;

}

public String getAuthorName() {

return authorName;

}

public void setAuthorName(String authorName) {

this.authorName = authorName;

}

}

**Step 5:**Inside the repository package

Create a simple interface and name the interface as **BookRepo**. This interface is going to extend the **MongoRepository**

package com.example.security.repository;

import org.springframework.data.mongodb.repository.MongoRepository;

import com.example.security.entity.Book;

public interface BookRepo

extends MongoRepository<Book, Integer> {

}

**Step 6:**Inside the controller package. Inside the package create one class named as **BookController**

package com.example.security.controller;

import org.springframework.beans.factory.annotation.Autowired;

import org.springframework.web.bind.annotation.\*;

import com.example.security.entity.Book;

import com.example.security.repository.BookRepo;

import java.util.List;

@RestController

public class BookController {

@Autowired

private BookRepo repo;

@PostMapping("/addBook")

public String saveBook(@RequestBody Book book){

repo.save(book);

return "Added Successfully";

}

@GetMapping("/findAllBooks")

public List<Book> getBooks() {

return repo.findAll();

}

@DeleteMapping("/delete/{id}")

public String deleteBook(@PathVariable int id){

repo.deleteById(id);

return "Deleted Successfully";

}

}

**Step 7:**Below is the code for the application.properties file

server.port:8989

spring.data.mongodb.host=localhost

spring.data.mongodb.port=27017

spring.data.mongodb.database=jss

**Step 8:** Inside the MongoDB Compass

Go to your MongoDB Compass and create a Database named **BookStore**and inside the database create a collection named **Book**

**Testing the Endpoint in Postman**

POST – <http://localhost:8989/addBook>

GET – <http://localhost:8989/findAllBooks>

DELETE – <http://localhost:8989/delete/1>

Create and manage users and roles Migration to MongoDB

Integrate the work of each group and carry out integration testing

Bug tracking – using Jira or similar tools

Practice – code analysis using tools

Install docker on desktop and start the docker tool.

create docker container from docker image Run the docker container

1. **Securing REST APIs with Spring Security**

In order to add security to our Spring Boot application, we need to add the security starter dependency

<dependency>

<groupId>org.springframework.boot</groupId>

<artifactId>spring-boot-starter-security</artifactId>

</dependency>

This will also include the SecurityAutoConfiguration class containing the initial/default security configuration.

**By default, the Authentication gets enabled for the Application. Also, content negotiation is used to determine if basic or formLogin should be used.**

There are some predefined properties:

spring.security.user.name=root

spring.security.user.password=root

If we don't configure the password using the predefined property *spring.security.user.password* and start the application, a default password is randomly generated and printed in the console log:

Using default security password: c8be15de-4488-4490-9dc6-fab3f91435c6

File - new – Project - spring starter project

Name: spring-basic-security

Package: com.example.security

Click Next - Add Dependencies: Spring Web, Spring Security, Spring Boot Dev Tools….

Finish

**Name:** SpringBasicSecurityApplication

**package** com.example.security;

**SecurityController.java**

**package** com.example.security;

**import** org.springframework.web.bind.annotation.GetMapping;

**import** org.springframework.web.bind.annotation.RestController;

@RestController

**public** **class** SecurityController {

@GetMapping("/")

**public** String Welcome() {

**return** ("<h1>Welcome to SpringBoot Security</h1>");

}

}

**application.properties File**

spring.security.user.name=niranjan

spring.security.user.password=murthy

server.port=8090