**Micro Project (Practical 22) : Develop an E-commerce website**

**Index.html**

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta http-equiv="X-UA-Compatible" content="IE=edge">

    <meta name="viewport" content="width=device-width, initial-scale=1.0, user-scalable=no">

    <title>Page Replacement Algorithm Vizualizer</title>

    <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css" rel="stylesheet">

    <script src="https://cdn.jsdelivr.net/npm/@popperjs/core@2.9.2/dist/umd/popper.min.js"></script>

    <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.min.js"></script>

    <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.bundle.min.js"></script>

    <link href="https://cdn.jsdelivr.net/npm/bootstrap-icons@1.3.0/font/bootstrap-icons.css" rel="stylesheet">

    <script src="https://code.jquery.com/jquery-3.5.1.min.js"></script>

    <link rel="stylesheet" href="style.css">

</head>

<body>

    <nav class="navbar navbar-expand-lg navbar-dark bg-primary fixed-top">

        <div class="container-fluid">

            <a class="navbar-brand" href="#">Programmer's Academy</a>

            <button class="navbar-toggler" type="button" data-bs-toggle="collapse" data-bs-target="#navbarSupportedContent" aria-controls="navbarSupportedContent" aria-expanded="false" aria-label="Toggle navigation">

            <span class="navbar-toggler-icon"></span>

        </button>

        <div class="collapse navbar-collapse" id="navbarSupportedContent">

            <ul class="navbar-nav me-auto mb-2 mb-lg-0">

              <li class="nav-item">

                <a class="nav-link active" aria-current="page" href="#">Home</a>

              </li>

              <li class="nav-item">

                <a class="nav-link" href="online-services.htm">Online Services</a>

              </li>

              <li class="nav-item">

                  <a class="nav-link disabled" href="#" tabindex="-1" aria-disabled="true">Downloads</a>

            </li>

            <li class="nav-item">

                <a class="nav-link" href="contact-us.htm">Contact Us</a>

            </li>

            </ul>

            <form class="d-flex">

              <input class="form-control me-2" type="search" placeholder="Search Services" aria-label="Search">

              <button class="btn btn-outline-light" type="submit">Search</button>

            </form>

            <button class="btn btn-outline-warning" style="margin-left: 10%;" type="submit">Login/Signup</button>

          </div>

        </div>

    </nav>

    <br><br>

    <div id="background" class="container-fluid p-0" style="width: 100%; height: 90vh;">

        <h1 class="text-center text-light">Programmer's Academy</h1>

        <h3 class="text-center text-light">The One Stop Destination To Learn Programming</h3>

    </div>

    <br><br>

    <div class="container border border-3 border-primary p-4" style="border-radius: 50px;">

        <h1 class="text-center text-primary">Our Courses</h1>

        <br>

        <div class="container-fluid d-flex" style="gap: 10%;">

            <div class="card" style="width: 18rem;">

                <h1 class="text-center"><img src="https://raw.githubusercontent.com/isocpp/logos/master/cpp\_logo.png" class="card-img-top" alt="..." style="width: 40%;"></h1>

                <div class="card-body">

                    <h5 class="card-title">OOP With C++</h5>

                    <p class="card-text">Take a quick into core c++ fundamentals You will also learn advanced C++ programming.</p>

                </div>

            </div>

            <div class="card" style="width: 18rem;">

                <h1 class="text-center"><img src="https://upload.wikimedia.org/wikipedia/commons/thumb/c/c3/Python-logo-notext.svg/115px-Python-logo-notext.svg.png?20220821155029" class="card-img-top" alt="..." style="width: 40%;"></h1>

                <div class="card-body">

                    <h5 class="card-title">Python Programming</h5>

                    <p class="card-text">Learn the most powerful programming language. Learn automation using Python</p>

                </div>

            </div>

            <div class="card" style="width: 18rem;">

                <h1 class="text-center"><img src="https://upload.wikimedia.org/wikipedia/commons/d/dd/Linux\_logo.jpg?20090908114920" class="card-img-top" alt="..." style="width: 40%;"></h1>

                <div class="card-body">

                    <h5 class="card-title">Linux Fundamentals</h5>

                    <p class="card-text">The the Linux shell commands. Also you will learn bash programming</p>

                </div>

            </div>

        </div>

        <br>

        <div class="container-fluid d-flex" style="gap: 10%;">

            <div class="card" style="width: 18rem;">

                <h1 class="text-center"><img src="https://cdn-icons-png.flaticon.com/512/226/226777.png" class="card-img-top" alt="..." style="width: 40%;"></h1>

                <div class="card-body">

                    <h5 class="card-title">Java Programming</h5>

                    <p class="card-text">Develop Graphical User Interfaces using Java. Use its Swift library for this purpose</p>

                </div>

            </div>

            <div class="card" style="width: 18rem;">

                <h1 class="text-center"><img src="https://media.istockphoto.com/id/1286927886/vector/hacker-detected.jpg?s=612x612&w=0&k=20&c=2wT89GSmUelgcU5TYev6qKvU\_wEe80\_SfeKEvsIBRDo=" class="card-img-top" alt="..." style="width: 40%;"></h1>

                <div class="card-body">

                    <h5 class="card-title">Ethical Hacking</h5>

                    <p class="card-text">Learn tools like Nmap, Netcat, Metasploit and much. Complete all the 5 phases of Hacking</p>

                </div>

            </div>

            <div class="card" style="width: 18rem;">

                <h1 class="text-center"><img src="https://cdn.icon-icons.com/icons2/2235/PNG/512/android\_os\_logo\_icon\_134673.png" class="card-img-top" alt="..." style="width: 40%;"></h1>

                <div class="card-body">

                    <h5 class="card-title">Android Development</h5>

                    <p class="card-text">Learn to make Android apps using Kotlin. You will learn to use Android Studio all features</p>

                </div>

            </div>

        </div>

    </div>

    <br><br>

    <nav class="navbar navbar-expand-lg navbar-dark bg-dark fixed-bottom" style="margin-top: 10%;">

        <h6 style="width: 100%;" class="text-center text-light">&copy; Copyright Forever : Programmer's Academy &trade;</h6>

    </nav>

</body>

<style>

    #background::before {

        content: "";

        background-image: url('bg.jpg');

        background-size: cover;

        position: absolute;

        top: 0px;

        right: 0px;

        bottom: 0px;

        left: 0px;

        opacity: 0.85;

    }

    #background > h1{

        position: relative;

        top: 40%;

        left: auto;

        font-size: 400%;

        font-weight: 800;

    }

    #background > h3{

        position: relative;

        top: 40%;

        left: auto;

        font-size: 250%;

        font-weight: bolder;

        color: rgb(185, 185, 185) !important;

    }

    .card:hover{

        transform: scale(1.1);

        transition: all 0.3s linear;

    }

    .card{

        transform: scale(1);

        transition: all 0.3s linear;

    }

</style>

<script src="script.js"></script>

</html>

**Online-services.html**

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta http-equiv="X-UA-Compatible" content="IE=edge">

    <meta name="viewport" content="width=device-width, initial-scale=1.0, user-scalable=no">

    <title>Page Replacement Algorithm Vizualizer</title>

    <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css" rel="stylesheet">

    <script src="https://cdn.jsdelivr.net/npm/@popperjs/core@2.9.2/dist/umd/popper.min.js"></script>

    <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.min.js"></script>

    <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.bundle.min.js"></script>

    <link href="https://cdn.jsdelivr.net/npm/bootstrap-icons@1.3.0/font/bootstrap-icons.css" rel="stylesheet">

    <script src="https://code.jquery.com/jquery-3.5.1.min.js"></script>

    <link rel="stylesheet" href="style.css">

</head>

<body>

    <nav class="navbar navbar-expand-lg navbar-dark bg-primary fixed-top">

        <div class="container-fluid">

            <a class="navbar-brand" href="#">Programmer's Academy</a>

            <button class="navbar-toggler" type="button" data-bs-toggle="collapse" data-bs-target="#navbarSupportedContent" aria-controls="navbarSupportedContent" aria-expanded="false" aria-label="Toggle navigation">

            <span class="navbar-toggler-icon"></span>

        </button>

        <div class="collapse navbar-collapse" id="navbarSupportedContent">

            <ul class="navbar-nav me-auto mb-2 mb-lg-0">

              <li class="nav-item">

                <a class="nav-link" aria-current="page" href="index.htm">Home</a>

              </li>

              <li class="nav-item">

                <a class="nav-link active" href="#">Online Services</a>

              </li>

              <li class="nav-item">

                  <a class="nav-link disabled" href="#" tabindex="-1" aria-disabled="true">Downloads</a>

            </li>

            <li class="nav-item">

                <a class="nav-link" href="contact-us.htm">Contact Us</a>

            </li>

            </ul>

            <form class="d-flex">

              <input class="form-control me-2" type="search" placeholder="Search Services" aria-label="Search">

              <button class="btn btn-outline-light" type="submit">Search</button>

            </form>

            <button class="btn btn-outline-warning" style="margin-left: 10%;" type="submit">Login/Signup</button>

          </div>

        </div>

    </nav>

    <br><br>

    <div id="navigation" class="container d-flex align-items-center justify-content-center" style="gap: 45%;">

        <nav style="--bs-breadcrumb-divider: url(&#34;data:image/svg+xml,%3Csvg xmlns='http://www.w3.org/2000/svg' width='8' height='8'%3E%3Cpath d='M2.5 0L1 1.5 3.5 4 1 6.5 2.5 8l4-4-4-4z' fill='%236c757d'/%3E%3C/svg%3E&#34;);" aria-label="breadcrumb" class="m-4">

            <ol class="breadcrumb">

                <li class="breadcrumb-item"><a href="#">Home</a></li>

                <li class="breadcrumb-item"><a href="#">Operating System</a></li>

                <li class="breadcrumb-item"><a href="#">Online Solvers</a></li>

                <li class="breadcrumb-item active" aria-current="page">Page Replacement</li>

            </ol>

        </nav>

        <button type="button" class="btn btn-primary position-relative">

            Alerts

            <span class="position-absolute top-0 start-100 translate-middle p-2 bg-danger border border-light rounded-circle">

              <span class="visually-hidden">New alerts</span>

            </span>

        </button>

    </div>

    <div id="header" class="container d-flex align-items-center justify-content-center gap-5 m-auto my-4">

        <img src="gpa.png" style="width: 10%;" alt="GPA Logo">

        <h1 class="text-center font-weight-bold text-primary">Page Recplacement Algorithm<br>Solver & Vizualizer</h1>

        <img src="gtu.png" style="width: 13%;" alt="GPA Logo">

    </div>

    <br><br>

    <div id="alerts" class="container"></div>

    <div class="container border border-3 border-primary p-3" style="border-radius: 50px;">

        <h2 class="text-info text-center">

            <i class="bi bi-keyboard-fill"></i>

            &nbsp;Enter The Following Values&nbsp;

            <i class="bi bi-keyboard-fill"></i>

        </h2>

        <br>

        <div class="container">

            <div class="input-group mb-3">

                <div class="input-group-prepend">

                  <span class="input-group-text" id="basic-addon1">Reference String</span>

                </div>

                <input id="reference-string" type="text" class="form-control" placeholder="Example : 0 1 2 3 ..." aria-label="Username" aria-describedby="basic-addon1">

            </div>

            <div class="input-group mb-3">

                <div class="input-group-append">

                  <span class="input-group-text" id="basic-addon2">Frame Size</span>

                </div>

                <input id="frame-size" type="number" min="1" class="form-control" placeholder="Example : 3" aria-label="Recipient's username" aria-describedby="basic-addon2">

            </div>

            <div class="input-group">

                <div class="input-group-append">

                    <span class="input-group-text" id="basic-addon2">Solving Algorithm</span>

                </div>

                <select class="form-select" id="inputGroupSelect04" aria-label="Select Job Position">

                    <option selected="">Select Algorithm</option>

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

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

                </select>

            </div>

        </div>

        <br>

        <p id="solve-btn" class="text-center"><button class="btn btn-outline-info" style="font-size: 1.2rem;">

            Solve

        </button></p>

    </div>

    <br><br>

    <div id="solution" class="container border border-3 border-primary p-3" style="border-radius: 50px;">

        <h2 class="text-center text-info">

            Solution

        </h2>

        <div id="frames" class="container d-flex p-3"></div>

        <h3 class="text-center text-info">

            Total number of page faults are : <span id="answer" class="text-success"></span>

        </h3>

    </div>

    <br><br>

    <div id="developers" class="container border border-primary border-3 p-3" style="border-radius: 50px;">

        <h2 class="text-center text-info">

            -:&nbsp;

            <i class="bi bi-code-square"></i>

            &nbsp;Developers&nbsp;

            <i class="bi bi-code-square"></i>

            &nbsp;:-

        </h2>

        <br>

        <h3 class="text-center text-primary">Chelaramani Pratham K. <span class="text-dark">-</span><span class="text-secondary"> 216170307006</span></h3>

        <h3 class="text-center text-primary">Prakhar N. Parikh <span class="text-dark">-</span><span class="text-secondary"> 216170307037</span></h3>

        <h3 class="text-center text-primary">Nagwadiya Tarun Pravinbhai <span class="text-dark">-</span><span class="text-secondary"> 206170307221</span></h3>

    </div>

    <br><br>

    <nav class="navbar navbar-expand-lg navbar-dark bg-dark fixed-bottom">

        <h6 style="width: 100%;" class="text-center text-light">&copy; Copyright Forever : Programmer's Academy &trade;</h6>

    </nav>

</body>

<script src="script.js"></script>

</html>

**Contact-us.html**

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta http-equiv="X-UA-Compatible" content="IE=edge">

    <meta name="viewport" content="width=device-width, initial-scale=1.0, user-scalable=no">

    <title>Page Replacement Algorithm Vizualizer</title>

    <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css" rel="stylesheet">

    <script src="https://cdn.jsdelivr.net/npm/@popperjs/core@2.9.2/dist/umd/popper.min.js"></script>

    <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.min.js"></script>

    <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.bundle.min.js"></script>

    <link href="https://cdn.jsdelivr.net/npm/bootstrap-icons@1.3.0/font/bootstrap-icons.css" rel="stylesheet">

    <script src="https://code.jquery.com/jquery-3.5.1.min.js"></script>

    <link rel="stylesheet" href="style.css">

</head>

<body>

    <nav class="navbar navbar-expand-lg navbar-dark bg-primary fixed-top">

        <div class="container-fluid">

            <a class="navbar-brand" href="#">Programmer's Academy</a>

            <button class="navbar-toggler" type="button" data-bs-toggle="collapse" data-bs-target="#navbarSupportedContent" aria-controls="navbarSupportedContent" aria-expanded="false" aria-label="Toggle navigation">

            <span class="navbar-toggler-icon"></span>

        </button>

        <div class="collapse navbar-collapse" id="navbarSupportedContent">

            <ul class="navbar-nav me-auto mb-2 mb-lg-0">

              <li class="nav-item">

                <a class="nav-link" aria-current="page" href="index.htm">Home</a>

              </li>

              <li class="nav-item">

                <a class="nav-link" href="online-services.htm">Online Services</a>

              </li>

              <li class="nav-item">

                  <a class="nav-link disabled" href="#" tabindex="-1" aria-disabled="true">Downloads</a>

            </li>

            <li class="nav-item">

                <a class="nav-link active" href="#">Contact Us</a>

            </li>

            </ul>

            <form class="d-flex">

              <input class="form-control me-2" type="search" placeholder="Search Services" aria-label="Search">

              <button class="btn btn-outline-light" type="submit">Search</button>

            </form>

            <button class="btn btn-outline-warning" style="margin-left: 10%;" type="submit">Login/Signup</button>

          </div>

        </div>

    </nav>

    <br><br><br><br>

    <h1 class="text-center text-primary">Get In Touch With Us!</h1>

    <div class="container border border-3 border-primary p-4" style="border-radius: 50px;">

        <div class="input-group mb-3">

            <span class="input-group-text" id="basic-addon1">Name</span>

            <input type="text" class="form-control" placeholder="First Middle Last" aria-label="Username" aria-describedby="basic-addon1">

        </div>

        <div class="input-group mb-3">

            <span class="input-group-text" id="basic-addon1">Contact No</span>

            <input type="text" class="form-control" placeholder="+x xxxxx xxxxx" aria-label="Username" aria-describedby="basic-addon1">

        </div>

        <div class="input-group mb-3">

            <span class="input-group-text" id="basic-addon1">Email</span>

            <input type="text" class="form-control" placeholder="email" aria-label="Username">

            <span class="input-group-text">@</span>

            <input type="text" class="form-control" placeholder="domain" aria-label="Server">

            <span class="input-group-text">.com</span>

        </div>

        <div class="input-group mb-3">

            <span class="input-group-text" id="basic-addon1">Social Media Link</span>

            <input type="url" class="form-control" placeholder="https://name.platform.com" aria-label="Username" aria-describedby="basic-addon1">

        </div>

        <div class="input-group mb-3">

            <span class="input-group-text" id="basic-addon1">Contact No</span>

            <input type="text" class="form-control" placeholder="+x xxxxx xxxxx" aria-label="Username" aria-describedby="basic-addon1">

        </div>

        <div class="input-group">

            <select class="form-select" id="inputGroupSelect04" aria-label="Select Job Position">

                <option selected="">Select Course</option>

                <option value="1">C++</option>

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

                <option value="3">Linux</option>

                <option value="3">Python</option>

                <option value="3">Ethical Hacking</option>

                <option value="3">Android Development</option>

            </select>

        <button class="btn btn-outline-primary" type="button">Check Availibility</button>

        </div>

        <br>

        <div class="input-group">

            <span class="input-group-text">Comments</span>

            <textarea class="form-control" aria-label="With textarea"></textarea>

        </div>

    </div>

    <br><br>

    <nav class="navbar navbar-expand-lg navbar-dark bg-dark fixed-bottom" style="margin-top: 10%;">

        <h6 style="width: 100%;" class="text-center text-light">&copy; Copyright Forever : Programmer's Academy &trade;</h6>

    </nav>

</body>

<script src="script.js"></script>

</html>

**Script.js**

$("#solution").hide();

$("#solve-btn").click(function () {

    document.getElementById("frames").innerHTML = "&nbsp;";

    let reference\_string = $("#reference-string").val();

    let frame\_size = $("#frame-size").val();

    frame\_size = parseInt(frame\_size);

    let algorithm = $("#inputGroupSelect04").children("option:selected").val();

    if (algorithm == "Select Algorithm") {

        $("#alerts").append('<div class="alert alert-danger alert-dismissible fade show" role="alert">\

        <strong>Error!</strong> Please select an algorithm to continue.\

        <button type="button" class="btn-close" data-bs-dismiss="alert" aria-label="Close"></button>\

      </div>');

    }

    else if(algorithm == "1"){

        fifo(reference\_string, frame\_size);

        $("#alerts").append('<div class="alert alert-success alert-dismissible fade show" role="alert">\

        <strong>Success!</strong> Please see the solution below.\

        <button type="button" class="btn-close" data-bs-dismiss="alert" aria-label="Close"></button>\

      </div>');

    }

    else if(algorithm == "2"){

        lru(reference\_string, frame\_size);

        $("#alerts").append('<div class="alert alert-success alert-dismissible fade show" role="alert">\

        <strong>Error!</strong> Please see the solution below.\

        <button type="button" class="btn-close" data-bs-dismiss="alert" aria-label="Close"></button>\

      </div>');

    }

});

function fifo(reference\_string, frame\_size){

    document.getElementById("frames").innerHTML = "";

    var frame\_red = '<div class="frame-container">\

    <div id="page-no" class="frame">ref</div>' + '<div class="frame">val</div>'.repeat(frame\_size) + '<div id="fault" class="frame">PF</div>\

    </div>';

    var frame\_green = '<div class="frame-container">\

    <div id="page-no" class="frame-green">ref</div>' + '<div class="frame-green">val</div>'.repeat(frame\_size) + '<div id="fault" class="frame-green">PF</div>\

    </div>';

    let references = reference\_string.split(" ");

    let frame = [];

    let pointer = 0;

    let page\_faults = 0;

    for(let i = 0; i < references.length; i++){

        references[i] = parseInt(references[i]);

    }

    for(let i = 0; i < references.length; i++){

        if(frame.includes(references[i])){

            let new\_frame = frame\_green;

            for(let j = 0; j < frame.length; j++){

                new\_frame = new\_frame.replace("val", frame[j])

            }

            new\_frame = new\_frame.replace(/val/g, "&nbsp;")

            new\_frame = new\_frame.replace("ref", references[i])

            new\_frame = new\_frame.replace("PF", "-")

            $("#frames").append(new\_frame);

            continue;

        }

        else if(frame.length != frame\_size){

            frame.push(references[i]);

            page\_faults += 1;

        }

        else{

            frame[pointer] = references[i];

            page\_faults += 1;

            if(pointer != frame\_size-1){

                pointer += 1;

            }

            else{

                pointer = 0;

            }

        }

        let new\_frame = frame\_red;

            for(let j = 0; j < frame.length; j++){

                new\_frame = new\_frame.replace("val", frame[j])

            }

            new\_frame = new\_frame.replace(/val/g, "&nbsp;")

            new\_frame = new\_frame.replace("ref", references[i])

            $("#frames").append(new\_frame);

    }

    $("#answer").text(page\_faults);

    $("#solution").show();

}

function lru(reference\_string, frame\_size){

    document.getElementById("frames").innerHTML = "";

    var frame\_red = '<div class="frame-container">\

    <div id="page-no" class="frame">ref</div>' + '<div class="frame">val</div>'.repeat(frame\_size) + '<div id="fault" class="frame">PF</div>\

    </div>';

    var frame\_green = '<div class="frame-container">\

    <div id="page-no" class="frame-green">ref</div>' + '<div class="frame-green">val</div>'.repeat(frame\_size) + '<div id="fault" class="frame-green">PF</div>\

    </div>';

    let references = reference\_string.split(" ");

    let frame = [];

    let queue = [];

    let page\_faults = 0;

    for(let i = 0; i < references.length; i++){

        references[i] = parseInt(references[i]);

    }

    for(let i = 0; i < references.length; i++){

        if(frame.includes(references[i])){

            if(queue.includes(references[i])){

                let index = queue.indexOf(references[i]);

                if(index > -1){

                    queue.splice(index, 1);

                }

            }

            queue.push(references[i]);

            let new\_frame = frame\_green;

            for(let j = 0; j < frame.length; j++){

                new\_frame = new\_frame.replace("val", frame[j])

            }

            new\_frame = new\_frame.replace(/val/g, "&nbsp;")

            new\_frame = new\_frame.replace("ref", references[i])

            new\_frame = new\_frame.replace("PF", "-")

            $("#frames").append(new\_frame);

            continue;

        }

        else if(frame.length != frame\_size){

            queue.push(references[i]);

            frame.push(references[i]);

            page\_faults += 1;

        }

        else{

            let element = queue.shift();

            console.log("element : ", element)

            let index = frame.indexOf(element);

            queue.push(references[i]);

            frame[index] = references[i];

            page\_faults += 1;

        }

        console.log("queue : ", queue);

        console.log("frame : ", frame);

        let new\_frame = frame\_red;

            for(let j = 0; j < frame.length; j++){

                new\_frame = new\_frame.replace("val", frame[j])

            }

            new\_frame = new\_frame.replace(/val/g, "&nbsp;")

            new\_frame = new\_frame.replace("ref", references[i])

            $("#frames").append(new\_frame);

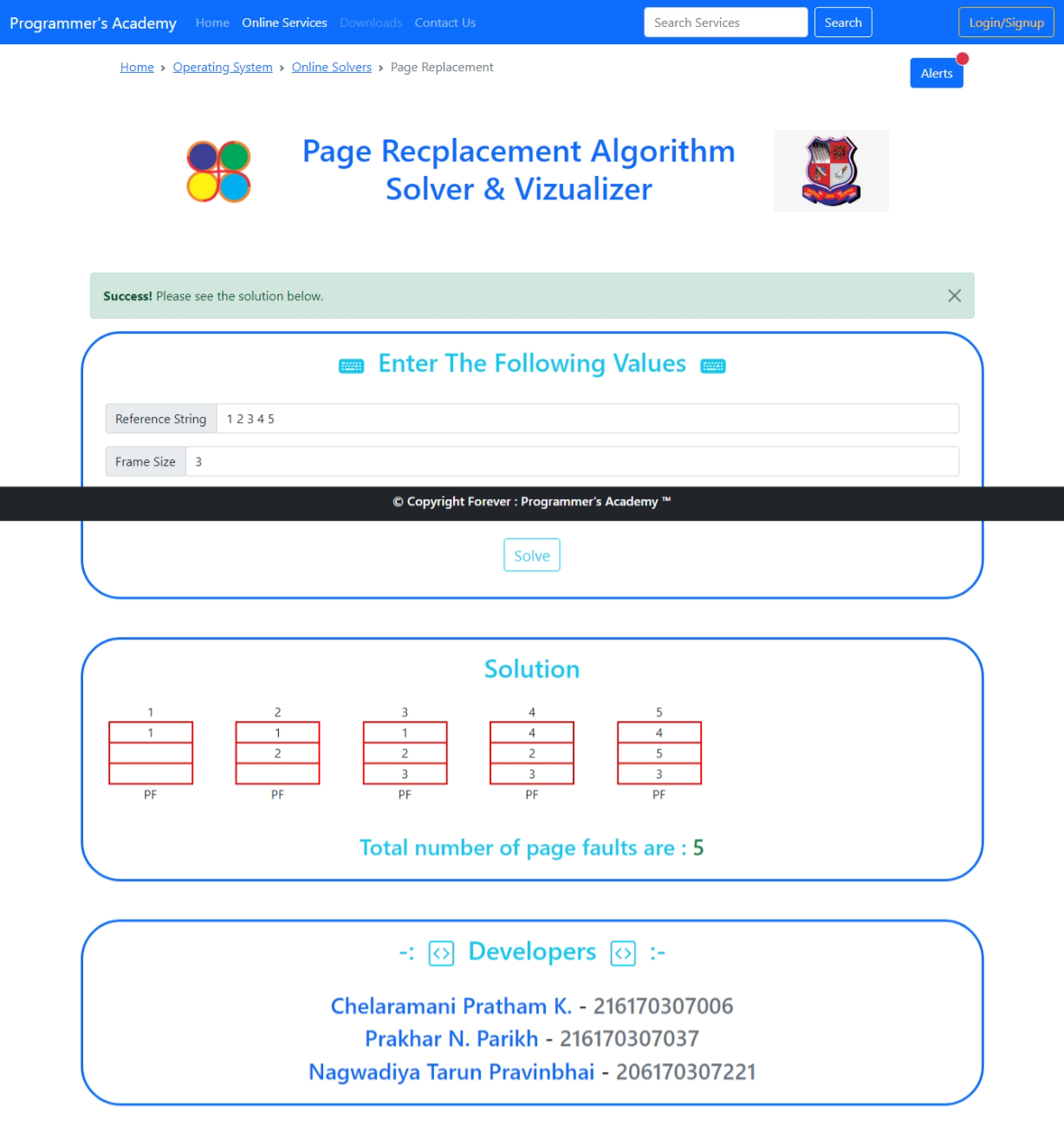
    }

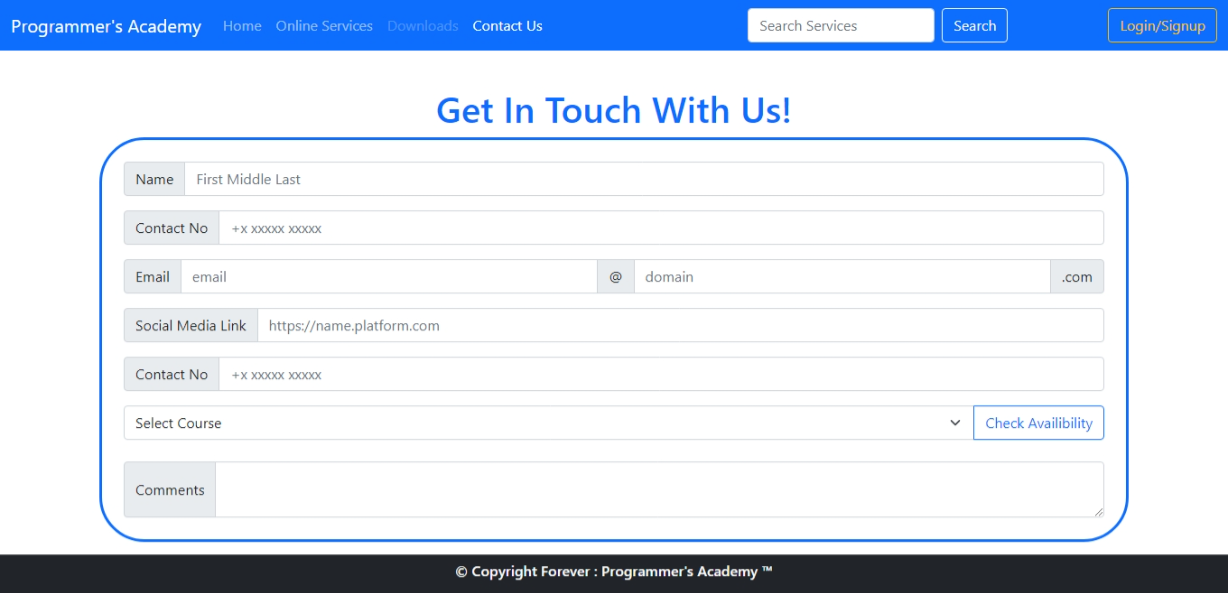
    $("#answer").text(page\_faults);

    $("#solution").show();

}

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