Proiect Atestat

“Algoritmi și Jocuri clasice”

Elev: Bonef Teofil

Clasa: 12 Real

Profesor: Roger Popescu

Cuprins

* 1. Argument (Introducere) 3

1. Mediul de lucru 3
2. Modul de realizare 4
3. Modul de utilizare 5
4. Bibliografie 6
5. Anexa 7
   1. index.html 7
   2. robot.html 12
   3. parcurgerelatime.html 15
   4. cautarebinara.html 19
   5. parcurgereadancime.html 22
   6. combinari.html 26
   7. xand0/index.html 29
   8. xand0/design.css 31
   9. xand0/functions.js 33

# Argument (Introducere)

Pasiunea mea pentru algoritmică m-a condus de-a lungul timpului la selectarea unor algoritmi. Astfel am strâns mai multi algoritmi care mi s-au părut mai interesanți și care sunt foarte utili în programele de zi cu zi.

Sunt fascinat de logica din spatele acestora și de modul în care funcționează. De asemenea îmi place sa îi fac mai economici, sa ruleze mai eficient și sa consume mai putina memorie.

# Mediul de lucru

HTML este o formă de marcare orientată către prezentarea documentelor text pe o singura pagină, utilizând un software de redare specializat, numit agent utilizator HTML, cel mai bun exemplu de astfel de software fiind browserul web. HTML furnizează mijloacele prin care conținutul unui document poate fi adnotat cu diverse tipuri de metadate și indicații de redare. Indicațiile de redare pot varia de la decorațiuni minore ale textului, cum ar fi specificarea faptului că un anumit cuvânt trebuie subliniat sau că o imagine trebuie introdusă, până la scripturi sofisticate, hărți de imagini și formulare. Metadatele pot include informații despre titlul și autorul documentului, informații structurale despre cum este împărțit documentul în diferite segmente, paragrafe, liste, titluri etc. și informații cruciale care permit ca documentul să poată fi legat de alte documente pentru a forma astfel hiperlink-uri (sau web-ul).

HTML este un format text proiectat pentru a putea fi citit și editat de oameni utilizând un editor de text simplu. Totuși scrierea și modificarea paginilor în acest fel solicită cunoștințe solide de HTML și este consumatoare de timp. Editoarele grafice (de tip WYSIWYG) cum ar fi Macromedia Dreamweaver, Adobe GoLive sau Microsoft FrontPage permit ca paginile web sa fie tratate asemănător cu documetele Word, dar cu observația că aceste programe generează un cod HTML care este de multe ori de proastă calitate.

HTML se poate genera direct utilizând tehnologii de codare din partea serverului cum ar fi PHP, JSP sau ASP. Multe aplicații ca sistemele de gestionare a conținutului, wiki-uri și forumuri web generează pagini HTML.

HTML este de asemenea utilizat în e-mail. Majoritatea aplicațiilor de e-mail folosesc un editor HTML încorporat pentru compunerea e-mail-urilor și un motor de prezentare a e-mail-urilor de acest tip. Folosirea e-mail-urilor HTML este un subiect controversat și multe liste de mail le blochează intenționat.

# Modul de realizare

In realizarea acestui proiect s-a folosit un template ca sa facă site-ul sa arate după standarde moderne.

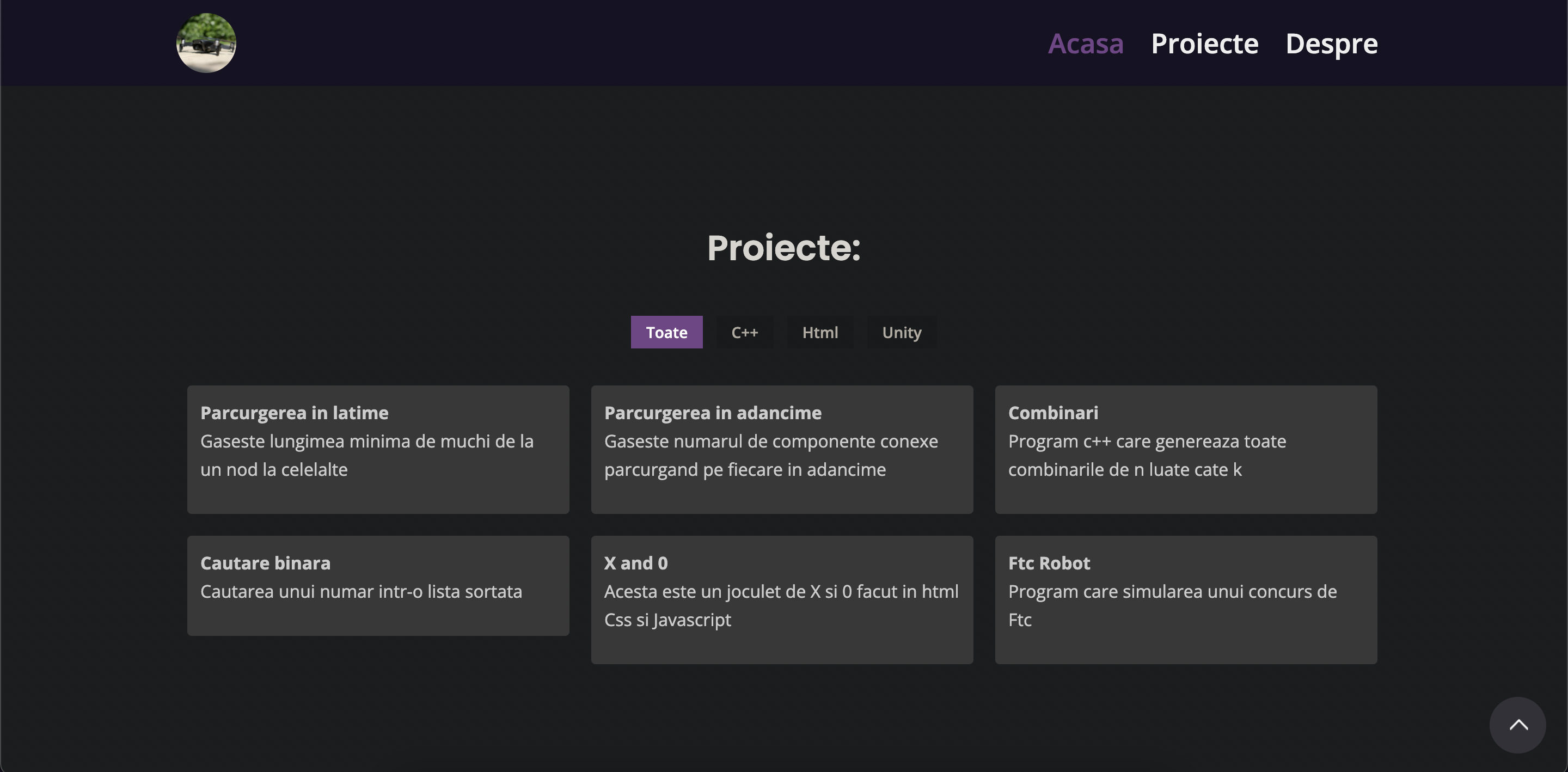
La începutul secțiunii <body> se afla tagul <nav id="navbar"> care alcătuiește bara de navigare a site-ului. Aici am pus link de la secțiuni din pagina principala. Apoi în tag-ul header se afla titlul proiectului. La sfârșitul fiecărei pagini avem footer-ul cu secțiunea copyright.

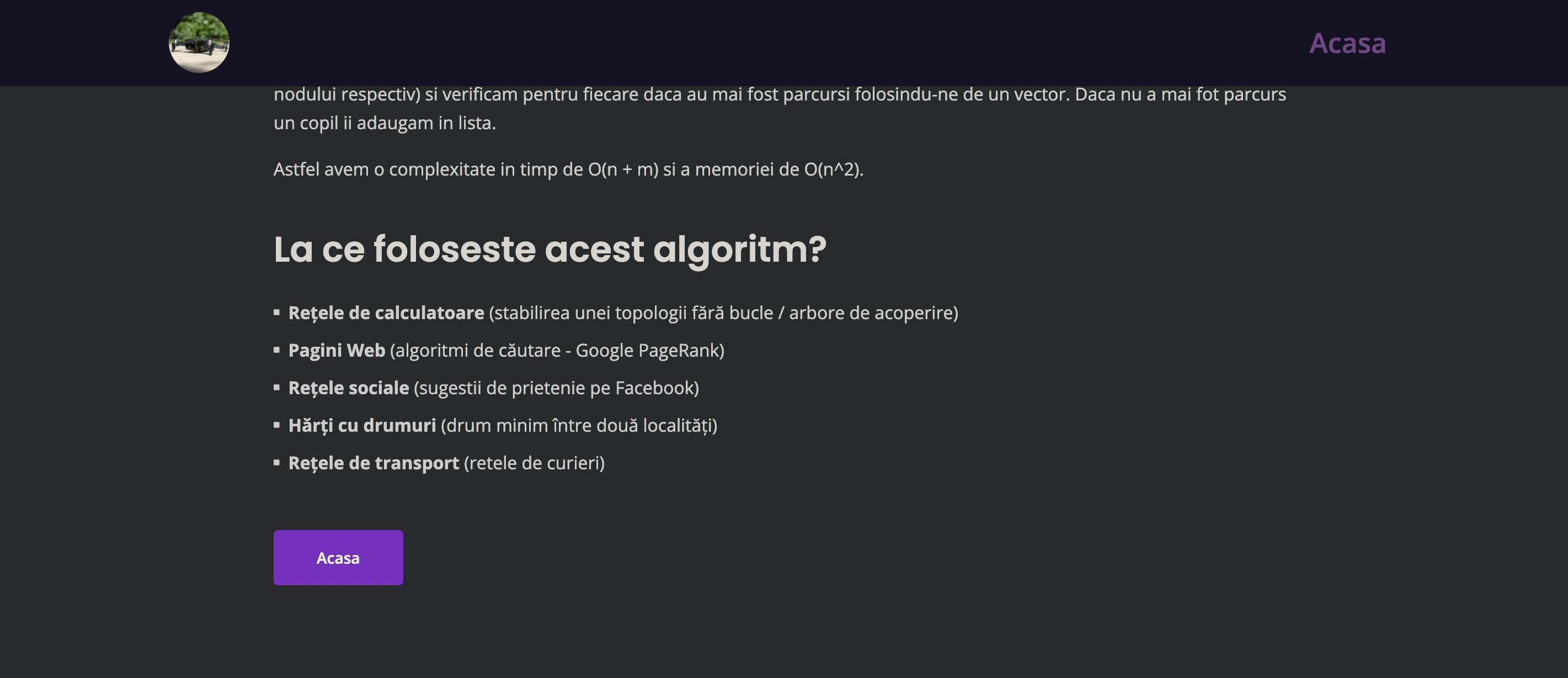
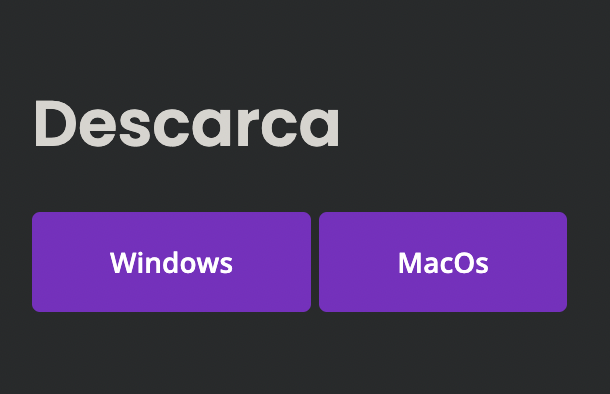
Site-ul este alcătuit din 7 pagini:

* Pagina principala: index.html
* parcurgerelatime.html
* parcurgereadancime.html
* combiner.html
* cautarebinara.html
* In folderul xand0:
  + index.html
  + design.css
  + functions.js
* robot.html

# Modul de utilizare

Când intri pe site ți se deschide o pagina cu titlul proiectului si ai un buton care te va duce la prezentarea acestuia, pe fundalul paginii fiind un filmuleț. De asemenea poți sa dai scroll sau sa te folosești de butoanele din bara de sus pentru a naviga in pagina principala.

In secțiunea de proiecte poți sa dai pe fiecare si te duce la pagina proiectului respectiv.

In pagina proiectelor din c++ și cel din Unity vei găsi în bara de sus un buton pe care scrie Acasă de întoarcere în pagina principala și de asemenea la sfârșitul pagini.

De asemenea proiectul din Unity poți să-l descarci pentru Windows sau macOS.

# Bibliografie

Template-ul folosit a fost de pe: [Theme Wagon](http://themewagon.com)

Template-ul folosit pentru a afișa codul în pagina: [Prism](http://prismjs.com)

Informatile legate de utilizarea algoritmilor au fost luate de pe: [Open CourseWare](https://ocw.cs.pub.ro/courses/pa/laboratoare/laborator-07)

Informatile legate de concursul Ftc și de Html au fost luate de pe [Wikipedia](http://ro.wikipedia.org)

# Anexa

# index.html

<!DOCTYPE html>  
<html lang="en">  
  
<head>  
 <meta charset="utf-8">  
 <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">  
  
 <!-- SEO Meta Tags -->  
 <meta name="description" content="Your description">  
 <meta name="author" content="Your name">  
  
 <!-- OG Meta Tags to improve the way the post looks when you share the page on Facebook, Twitter, LinkedIn -->  
 <meta property="og:site\_name" content="" /> <!-- website name -->  
 <meta property="og:site" content="" /> <!-- website link -->  
 <meta property="og:title" content="" /> <!-- title shown in the actual shared post -->  
 <meta property="og:description" content="" /> <!-- description shown in the actual shared post -->  
 <meta property="og:image" content="" /> <!-- image link, make sure it's jpg -->  
 <meta property="og:url" content="" /> <!-- where do you want your post to link to -->  
 <meta name="twitter:card" content="summary\_large\_image"> <!-- to have large image post format in Twitter -->  
  
 <!-- Webpage Title -->  
 <title>Algoritmi si Jocuri clasice</title>  
  
 <!-- Styles -->  
 <link href="https://fonts.googleapis.com/css2?family=Open+Sans:ital,wght@0,400;0,600;0,700;1,400&display=swap"  
 rel="stylesheet">  
 <link href="https://fonts.googleapis.com/css2?family=Poppins:wght@600&display=swap" rel="stylesheet">  
 <link href="css/bootstrap.min.css" rel="stylesheet">  
 <link href="css/fontawesome-all.min.css" rel="stylesheet">  
 <link href="css/swiper.css" rel="stylesheet">  
 <link href="css/styles.css" rel="stylesheet">  
  
 <!-- Favicon -->  
 <link rel="icon" href="images/favicon.png">  
</head>  
  
<body>  
  
 <!-- Navigation -->  
 <nav id="navbar" class="navbar navbar-expand-lg fixed-top navbar-dark" aria-label="Main navigation">  
 <div class="container">  
  
 <!-- Image Logo -->  
 <a class="navbar-brand logo-image" href="index.html"><img src="images/drona.jpg" alt="alternative"></a>  
  
 <!-- Text Logo - Use this if you don't have a graphic logo -->  
 <!-- <a class="navbar-brand logo-text" href="index.html">Desi</a> -->  
  
 <button class="navbar-toggler p-0 border-0" type="button" id="navbarSideCollapse"  
 aria-label="Toggle navigation">  
 <span class="navbar-toggler-icon"></span>  
 </button>  
  
 <div class="navbar-collapse offcanvas-collapse" id="navbarsExampleDefault">  
 <ul class="navbar-nav ms-auto navbar-nav-scroll">  
 <li class="nav-item">  
 <a class="nav-link active" aria-current="page" href="#header">Acasa</a>  
 </li>  
 <li class="nav-item">  
 <a class="nav-link" href="#projects">Proiecte</a>  
 </li>  
 <li class="nav-item">  
 <a class="nav-link" href="#about">Despre</a>  
 </li>  
 </ul>  
 </div> <!-- end of navbar-collapse -->  
 </div> <!-- end of container -->  
 </nav> <!-- end of navbar -->  
 <!-- end of navigation -->  
  
  
 <!-- Header -->  
 <header id="header" class="header">  
 <div class="header-content">  
 <div class="container">  
 <div class="row">  
 <div class="col-lg-12">  
 <h1 class="h1-large">Algoritmi si Jocuri clasice</h1>  
 <a class="btn-solid-lg" href="#introduction">Descopera</a>  
 </div> <!-- end of col -->  
 </div> <!-- end of row -->  
 </div> <!-- end of container -->  
 </div> <!-- end of header-content -->  
  
 <!-- Video Background -->  
 <video autoplay loop muted id="video-background" poster="images/header-background.jpg" playsinline>  
 <source src="images/header-background-video.mp4" type="video/mp4" />  
 </video>  
 <!-- end of video background -->  
  
 </header> <!-- end of header -->  
 <!-- end of header -->  
  
  
 <!-- Introduction -->  
 <div id="introduction" class="cards-1">  
 <div class="container">  
 <div class="row">  
 <div class="col-lg-12">  
 <h2 class="h2-heading">Aici o sa gasesti niste proiecte care mi-au placut foarte mult si mi-a luat mult timp sa le fac</h2>  
 <p class="p-heading">Aceste proiecte le-am facut de-a lungul timpului cat am fost la liceu</p>  
 </div> <!-- end of col -->  
 </div> <!-- end of row -->  
 <div class="row">  
 <div class="col-lg-12">  
  
 <!-- C++ -->  
 <div class="card">  
 <div class="card-icon">  
 <img src="images/Cpp.svg" width="50px" style="margin: 18px 0px">  
 </div>  
 <div class="card-body">  
 <h4 class="card-title">C++</h4>  
 <div class="card-text">In C++ am facut niste algoritmi foarte interesanti</div>  
 </div>  
 </div>  
 <!-- end of C++ -->  
  
 <!-- Html -->  
 <div class="card">  
 <div class="card-icon">  
 <img src="images/Html.png" width="50px" style="margin: 23px 0px">  
 </div>  
 <div class="card-body">  
 <h4 class="card-title">Html</h4>  
 <div class="card-text">In Html am implementat un joculet de X si 0</div>  
 </div>  
 </div>  
 <!-- end of Html -->  
  
 <!-- Unity -->  
 <div class="card">  
 <div class="card-icon">  
 <img src="images/UnityLogo.png" width="70px" style="margin: 15px 0px">  
 </div>  
 <div class="card-body">  
 <h4 class="card-title">Unity</h4>  
 <div class="card-text">In Unity am facut un simulator al unui robot de la FTC</div>  
 </div>  
 </div>  
 <!-- end of Unity -->  
  
 </div> <!-- end of col -->  
 </div> <!-- end of row -->  
 </div> <!-- end of container -->  
 </div> <!-- end of cards-1 -->  
 <!-- end of introduction -->  
  
  
 <!-- Projects -->  
 <div id="projects" class="filter bg-gray">  
 <div class="container">  
 <div class="row">  
 <div class="col-lg-12">  
 <h2 class="h2-heading">Proiecte:</h2>  
 </div> <!-- end of col -->  
 </div> <!-- end of row -->  
 <div class="row">  
 <div class="col-lg-12">  
 <div class="button-group filters-button-group">  
 <button class="button is-checked" data-filter="\*">Toate</button>  
 <button class="button" data-filter=".cpp">C++</button>  
 <button class="button" data-filter=".html">Html</button>  
 <button class="button" data-filter=".unity">Unity</button>  
 </div> <!-- end of button group -->  
 <div class="grid">  
 <div class="element-item cpp">  
 <a href="parcurgerelatime.html">  
 <p><strong>Parcurgerea in latime</strong><br>Gaseste lungimea minima de muchi de la un  
 nod la celelalte</p>  
 </a>  
 </div>  
 <div class="element-item cpp">  
 <a href="parcurgereadancime.html">  
 <p><strong>Parcurgerea in adancime</strong><br>Gaseste numarul de componente conexe  
 parcurgand-o pe fiecare in adancime</p>  
 </a>  
 </div>  
 <div class="element-item cpp">  
 <a href="combinari.html">  
 <p><strong>Combinari</strong><br>Program c++ care genereaza toate combinarile de n luate  
 cate k</p>  
 </a>  
 </div>  
 <div class="element-item cpp">  
 <a href="cautarebinara.html">  
 <p><strong>Cautare binara</strong><br>Cautauta rapid unu numar intr-o lista sortata</p>  
 </a>  
 </div>  
 <div class="element-item html">  
 <a href="xand0/index.html">  
 <p><strong>X and 0</strong><br>Acesta este un joculet de X si 0 facut in Html Css si Javascript  
 </p>  
 </a>  
 </div>  
 <div class="element-item unity">  
 <a href="robot.html">  
 <p><strong>Ftc Robot</strong><br>Program care simuleaza un robot de la concursul Ftc   
 </p>  
 </a>  
 </div>  
 </div> <!-- end of grid -->  
 </div> <!-- end of col -->  
 </div> <!-- end of row -->  
 </div> <!-- end of container -->  
 </div> <!-- end of filter -->  
 <!-- end of projects -->  
  
  
 <!-- About -->  
 <div id="about" class="split">  
 <div class="container">  
 <div class="row">  
 <div class="col-lg-12">  
  
 <!-- Text Container -->  
 <div class="text-container">  
 <h2>Cine sunt eu?</h2>  
 <p>Eu sunt Teofil, elev in clasa a 12-a Real in Otopeni</p>  
 <p><strong>Creativitate -</strong> Este foarte importanta creativitatea si m-a ajutat foarte mult la crearea joculetelor</p>  
 <p><strong>Pasiune -</strong> De cand m-am intalnit cu informatica am observat ca imi place foarte mult  
 si mi-am petrecut mult timp invatand programare</p>  
 </div> <!-- end of text-container -->  
 <!-- end of text container -->  
  
 </div> <!-- end of col -->  
 </div> <!-- end of row -->  
 </div> <!-- end of container -->  
 </div> <!-- end of split -->  
 <!-- end of About -->  
  
  
 <!-- Copyright -->  
 <div class="copyright">  
 <div class="container">  
 <div class="row">  
 <div class="col-lg-12">  
 <p class="p-small">Copyright © Teofil 2022</p>  
 </div> <!-- end of col -->  
 </div> <!-- enf of row -->  
  
 <div class="row">  
 <div class="col-lg-12">  
 <p class="p-small">Distributed by: <a href="https://themewagon.com/"  
 target="\_blank"><u>Themewagon</u></a></p>  
 </div> <!-- end of col -->  
 </div> <!-- enf of row -->  
 </div> <!-- end of container -->  
 </div> <!-- end of copyright -->  
 <!-- end of copyright -->  
  
  
 <!-- Back To Top Button -->  
 <button onclick="topFunction()" id="myBtn">  
 <img src="images/up-arrow.png" alt="alternative">  
 </button>  
 <!-- end of back to top button -->  
  
 <!-- Scripts -->  
 <script src="js/bootstrap.min.js"></script> <!-- Bootstrap framework -->  
 <script src="js/swiper.min.js"></script> <!-- Swiper for image and text sliders -->  
 <script src="js/purecounter.min.js"></script> <!-- Purecounter counter for statistics numbers -->  
 <script src="js/isotope.pkgd.min.js"></script> <!-- Isotope for filter -->  
 <script src="js/scripts.js"></script> <!-- Custom scripts -->  
</body>  
  
</html>

# robot.html

<!DOCTYPE html>  
<html lang="en">  
  
<head>  
 <meta charset="utf-8">  
 <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">  
  
 <!-- SEO Meta Tags -->  
 <meta name="description" content="Your description">  
 <meta name="author" content="Your name">  
  
 <!-- OG Meta Tags to improve the way the post looks when you share the page on Facebook, Twitter, LinkedIn -->  
 <meta property="og:site\_name" content="" /> <!-- website name -->  
 <meta property="og:site" content="" /> <!-- website link -->  
 <meta property="og:title" content="" /> <!-- title shown in the actual shared post -->  
 <meta property="og:description" content="" /> <!-- description shown in the actual shared post -->  
 <meta property="og:image" content="" /> <!-- image link, make sure it's jpg -->  
 <meta property="og:url" content="" /> <!-- where do you want your post to link to -->  
 <meta name="twitter:card" content="summary\_large\_image"> <!-- to have large image post format in Twitter -->  
  
 <!-- Webpage Title -->  
 <title>Ftc Robot</title>  
  
 <!-- Styles -->  
 <link href="https://fonts.googleapis.com/css2?family=Open+Sans:ital,wght@0,400;0,600;0,700;1,400&display=swap"  
 rel="stylesheet">  
 <link href="https://fonts.googleapis.com/css2?family=Poppins:wght@600&display=swap" rel="stylesheet">  
 <link href="css/bootstrap.min.css" rel="stylesheet">  
 <link href="css/fontawesome-all.min.css" rel="stylesheet">  
 <link href="css/swiper.css" rel="stylesheet">  
 <link href="css/styles.css" rel="stylesheet">  
  
 <!-- Favicon -->  
 <link rel="icon" href="images/favicon.png">  
</head>  
  
<body>  
 <!-- Navigation -->  
 <nav id="navbar" class="navbar navbar-expand-lg fixed-top navbar-dark" aria-label="Main navigation">  
 <div class="container">  
  
 <!-- Image Logo -->  
 <a class="navbar-brand logo-image" href="index.html"><img src="images/drona.jpg" alt="alternative"></a>  
  
 <!-- Text Logo - Use this if you don't have a graphic logo -->  
 <!-- <a class="navbar-brand logo-text" href="index.html">Desi</a> -->  
  
 <button class="navbar-toggler p-0 border-0" type="button" id="navbarSideCollapse"  
 aria-label="Toggle navigation">  
 <span class="navbar-toggler-icon"></span>  
 </button>  
  
 <div class="navbar-collapse offcanvas-collapse" id="navbarsExampleDefault">  
 <ul class="navbar-nav ms-auto navbar-nav-scroll">  
 <li class="nav-item">  
 <a class="nav-link active" aria-current="page" href="index.html">Acasa</a>  
 </li>  
 </ul>  
 </div> <!-- end of navbar-collapse -->  
 </div> <!-- end of container -->  
 </nav> <!-- end of navbar -->  
 <!-- end of navigation -->  
  
 <!-- Header -->  
 <header class="ex-header">  
 <div class="container">  
 <div class="row">  
 <div class="col-xl-10 offset-xl-1">  
 <h1>Ftc Robot</h1>  
 </div> <!-- end of col -->  
 </div> <!-- end of row -->  
 </div> <!-- end of container -->  
 </header> <!-- end of ex-header -->  
 <!-- end of header -->  
  
  
 <!-- Basic -->  
 <div class="ex-basic-1 pt-4">  
 <div class="container">  
 <div class="row">  
 <div class="col-xl-10 offset-xl-1">  
 <h2 class="mb-3">FIRST Tech Challenge (FTC)</h2>  
 <p>Este o competiție de robotică cu tradiție în SUA, care se adresează elevilor din clasele 7-12 si care presupune  
 proiectarea, construirea și programarea unui robot. Competiția se desfășoară și în România din anul 2016 sub numele de  
 FIRST Tech Challenge România și este organizat de Asociația Nație Prin Educație. Meciurile competiționale se dispută în  
 alianțe: 2 echipe în alianța albastră, 2 echipe în alianța roșie si 4 roboți pe un teren specific de joc. Construcția  
 robotului este bazat pe un kit care este format din piese metalice și/sau plastic, din care se construiește structura și  
 sistemul de angrenare, împreună cu diferite piese electronice(senzori, sisteme de control, cameră video), toate acestea  
 puse în mișcare de un dispozitiv bazat pe Android (sistem de operare) programat folosind Java (limbaj de  
 programare), prin sistemul de blocuri de programare, sau alte sisteme de programare Android. Echipele sub îndrumarea  
 antrenorilor, mentorilor și împreună cu voluntari, dezvoltă strategii și construiesc roboți, bazându-se pe principii  
 inovatoare, din inginerie. Premiile sunt date pentru performanța și construcția robotului precum și pentru activitățile  
 echipelor de robotică în comunitate.</p>  
 <p class="mb-4">In timpul participarii la acest concurs am facut acest program care sa simuleze robotul nostru pe terenul  
 de meci de la concurs si am putut astfel sa-l facem sa se miste autonom. Asa arata joculetul cand intri in meci:</p>  
 <img class="img-fluid mb-5" src="images/robot.png" alt="alternative">  
  
 <h2 class="mb-4">Descarca</h2>  
 <a class="btn-solid-reg mb-5" href="Diverse/Ftc Robot Setup (x86).exe">Windows</a>  
 <a class="btn-solid-reg mb-5" href="Diverse/Ftc Robot.app.zip">MacOs</a>  
  
 <h2 class="mb-4">Cum il folosesti?</h2>  
 <p class="mb-5">Cand intri ti se deschide vezi o pagina in care ai 3 optiuni de meciuri: Autonom, Controler si Free.  
 Autonom deschide meciul in care robotul este autonom in primele 30 de secunde si pune doua cuburi pe o placa  
 si apoi trece in modul manual. In modul controler este direct pe manual,  
 iar in cel free nu sunt platformele pentru cuburi si cuburile sunt asezate in turnuri.  
 Acest mod este folosit pentru experimente mai diferite. In timpul meciului poti sa apesi pe "Escape"  
 si ti se deschide un meniu in care poti sa schimbi niste setari sau sa te intorci la meniul principal.  
 </p>  
 <a class="btn-solid-reg mb-5" href="index.html">Acasa</a>  
 </div> <!-- end of col -->  
 </div> <!-- end of row -->  
 </div> <!-- end of container -->  
 </div> <!-- end of ex-basic-1 -->  
 <!-- end of basic -->  
  
  
 <!-- Copyright -->  
 <div class="copyright">  
 <div class="container">  
 <div class="row">  
 <div class="col-lg-12">  
 <p class="p-small">Copyright © Teofil 2022</p>  
 </div> <!-- end of col -->  
 </div> <!-- enf of row -->  
  
 <div class="row">  
 <div class="col-lg-12">  
 <p class="p-small">Distributed by: <a href="https://themewagon.com/" target="\_blank"><u>Themewagon</u></a></p>  
 </div> <!-- end of col -->  
 </div> <!-- enf of row -->  
 </div> <!-- end of container -->  
 </div> <!-- end of copyright -->  
 <!-- end of copyright -->  
  
  
 <!-- Back To Top Button -->  
 <button onclick="topFunction()" id="myBtn">  
 <img src="images/up-arrow.png" alt="alternative">  
 </button>  
 <!-- end of back to top button -->  
  
 <!-- Scripts -->  
 <script src="js/bootstrap.min.js"></script> <!-- Bootstrap framework -->  
 <script src="js/swiper.min.js"></script> <!-- Swiper for image and text sliders -->  
 <script src="js/purecounter.min.js"></script> <!-- Purecounter counter for statistics numbers -->  
 <script src="js/isotope.pkgd.min.js"></script> <!-- Isotope for filter -->  
 <script src="js/scripts.js"></script> <!-- Custom scripts -->  
</body>  
</html>

# parcurgerelatime.html

<!DOCTYPE html>  
<html lang="en">  
  
<head>  
 <meta charset="utf-8">  
 <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">  
  
 <!-- SEO Meta Tags -->  
 <meta name="description" content="Your description">  
 <meta name="author" content="Your name">  
  
 <!-- OG Meta Tags to improve the way the post looks when you share the page on Facebook, Twitter, LinkedIn -->  
 <meta property="og:site\_name" content="" /> <!-- website name -->  
 <meta property="og:site" content="" /> <!-- website link -->  
 <meta property="og:title" content="" /> <!-- title shown in the actual shared post -->  
 <meta property="og:description" content="" /> <!-- description shown in the actual shared post -->  
 <meta property="og:image" content="" /> <!-- image link, make sure it's jpg -->  
 <meta property="og:url" content="" /> <!-- where do you want your post to link to -->  
 <meta name="twitter:card" content="summary\_large\_image"> <!-- to have large image post format in Twitter -->  
  
 <!-- Webpage Title -->  
 <title>Parcurgerea in latime</title>  
  
 <!-- Styles -->  
 <link href="https://fonts.googleapis.com/css2?family=Open+Sans:ital,wght@0,400;0,600;0,700;1,400&display=swap"  
 rel="stylesheet">  
 <link href="https://fonts.googleapis.com/css2?family=Poppins:wght@600&display=swap" rel="stylesheet">  
 <link href="css/bootstrap.min.css" rel="stylesheet">  
 <link href="css/fontawesome-all.min.css" rel="stylesheet">  
 <link href="css/swiper.css" rel="stylesheet">  
 <link href="css/styles.css" rel="stylesheet">  
 <link href="css/prism.css" rel="stylesheet">  
  
  
  
 <!-- Favicon -->  
 <link rel="icon" href="images/favicon.png">  
</head>  
  
<body>  
 <!-- Navigation -->  
 <nav id="navbar" class="navbar navbar-expand-lg fixed-top navbar-dark" aria-label="Main navigation">  
 <div class="container">  
  
 <!-- Image Logo -->  
 <a class="navbar-brand logo-image" href="index.html"><img src="images/drona.jpg" alt="alternative"></a>  
  
 <!-- Text Logo - Use this if you don't have a graphic logo -->  
 <!-- <a class="navbar-brand logo-text" href="index.html">Desi</a> -->  
  
 <button class="navbar-toggler p-0 border-0" type="button" id="navbarSideCollapse"  
 aria-label="Toggle navigation">  
 <span class="navbar-toggler-icon"></span>  
 </button>  
  
 <div class="navbar-collapse offcanvas-collapse" id="navbarsExampleDefault">  
 <ul class="navbar-nav ms-auto navbar-nav-scroll">  
 <li class="nav-item">  
 <a class="nav-link active" aria-current="page" href="index.html">Acasa</a>  
 </li>  
 </ul>  
 </div> <!-- end of navbar-collapse -->  
 </div> <!-- end of container -->  
 </nav> <!-- end of navbar -->  
 <!-- end of navigation -->  
  
 <!-- Header -->  
 <header class="ex-header">  
 <div class="container">  
 <div class="row">  
 <div class="col-xl-10 offset-xl-1">  
 <h1>Parcurgerea in latime</h1>  
 </div> <!-- end of col -->  
 </div> <!-- end of row -->  
 </div> <!-- end of container -->  
 </header> <!-- end of ex-header -->  
 <!-- end of header -->  
  
  
 <!-- Basic -->  
 <div class="ex-basic-1 pt-4">  
 <div class="container">  
 <div class="row">  
 <div class="col-xl-10 offset-xl-1">  
 <!--  
 <pre><code>  
 -->  
 <pre class="line-numbers"><code class="language-c">#include &lt;iostream>  
#include &lt;vector>  
#include &lt;queue>  
#include &lt;bitset>  
using namespace std;  
  
const int size = 1000000;  
vector&lt;int> nodes[size];  
bitset&lt;size> found;  
int lengths[size];  
  
int main() {  
 freopen("input.txt", "r", stdin);  
 int nr, m, start;  
 cin >> nr >> m >> start;  
 while (m--) { // citim muchile  
 int from, to;  
 scanf("%d %d", &from, &to);  
 nodes[from].push\_back(to);  
 }  
 queue&lt;int> list;  
 found[start] = 1;  
 lengths[start] = 1;  
  
 for (list.push(start); list.size(); list.pop()) { // parcurgem elementele din coada  
 int from = list.front();  
 for (int to : nodes[from]) { // parcurgem toti copii nodului actual  
 if (!found[to]) { // daca am gasit un nod care nu a mai fost in lista il adaugam  
 list.push(to);  
 found[to] = 1;  
 lengths[to] = lengths[from] + 1; // lungimea va fi cu 1 mai mare decat a nodului precedent  
 }  
 }  
 }  
 for (int i = 1; i &lt;= nr; ++i) { // afisam lungimile  
 printf("%d ", lengths[i] - 1);  
 }  
 return 0;  
} </code></pre>  
 <p>  
 Acest algoritm primeste un graf orientat si calculeaza numarul minim de muchi de la un nod dat la celelalte.  
 </p>  
 <h2 class="mb-3">Cum am gandit acest algoritm?</h2>  
 <p>La inceput citim muchile (parintele si fiul) si adaugam primului nod pe al doilea ca vecin.  
 Apoi ne folosim de o coada pentru a retine nodurile care trebuie parcurse, primul fiind nodul  
 cerut.  
 Pentru fiecare nod parcurgem toti copii lui (din lista cu fii a nodului respectiv)  
 si verificam pentru fiecare daca au mai fost parcursi folosindu-ne de un vector.  
 Daca nu a mai fot parcurs un copil ii adaugam in lista.</p>  
 <p class="mb-4">Astfel avem o complexitate in timp de O(n + m) si a memoriei de O(n^2).</p>  
 </div> <!-- end of col -->  
 </div> <!-- end of row -->  
 </div> <!-- end of container -->  
 </div> <!-- end of ex-basic-1 -->  
 <!-- end of basic -->  
  
  
 <!-- Basic -->  
 <div class="ex-basic-1 pt-3 pb-5">  
 <div class="container">  
 <div class="row">  
 <div class="col-xl-10 offset-xl-1">  
 <h2 class="mb-4">La ce foloseste acest algoritm?</h2>  
 <ul class="list-unstyled li-space-lg mb-5">  
 <li class="d-flex">  
 <i class="fas fa-square"></i>  
 <div class="flex-grow-1"><strong>Rețele de calculatoare</strong>  
 (stabilirea unei topologii fără bucle / arbore de acoperire)</div>  
 </li>  
 <li class="d-flex">  
 <i class="fas fa-square"></i>  
 <div class="flex-grow-1"><strong>Pagini Web</strong>  
 (algoritmi de căutare - Google PageRank)</div>  
 </li>  
 <li class="d-flex">  
 <i class="fas fa-square"></i>  
 <div class="flex-grow-1"><strong>Rețele sociale</strong>  
 (sugestii de prietenie pe Facebook)</div>  
 </li>  
 <li class="d-flex">  
 <i class="fas fa-square"></i>  
 <div class="flex-grow-1"><strong>Hărți cu drumuri</strong>  
 (drum minim între două localități)</div>  
 </li>  
 <li class="d-flex">  
 <i class="fas fa-square"></i>  
 <div class="flex-grow-1"><strong>Rețele de transport</strong>  
 (retele de curieri)</div>  
 </li>  
 </ul>  
  
 <a class="btn-solid-reg mb-5" href="index.html">Acasa</a>  
 </div> <!-- end of col -->  
 </div> <!-- end of row -->  
 </div> <!-- end of container -->  
 </div> <!-- end of ex-basic-1 -->  
 <!-- end of basic -->  
  
 <!-- Copyright -->  
 <div class="copyright">  
 <div class="container">  
 <div class="row">  
 <div class="col-lg-12">  
 <p class="p-small">Copyright © Teofil 2022</p>  
 </div> <!-- end of col -->  
 </div> <!-- enf of row -->  
  
 <div class="row">  
 <div class="col-lg-12">  
 <p class="p-small">Distributed by: <a href="https://themewagon.com/"  
 target="\_blank"><u>Themewagon</u></a></p>  
 </div> <!-- end of col -->  
 </div> <!-- enf of row -->  
 </div> <!-- end of container -->  
 </div> <!-- end of copyright -->  
 <!-- end of copyright -->  
  
  
 <!-- Back To Top Button -->  
 <button onclick="topFunction()" id="myBtn">  
 <img src="images/up-arrow.png" alt="alternative">  
 </button>  
 <!-- end of back to top button -->  
  
 <!-- Scripts -->  
 <script src="js/bootstrap.min.js"></script> <!-- Bootstrap framework -->  
 <script src="js/swiper.min.js"></script> <!-- Swiper for image and text sliders -->  
 <script src="js/purecounter.min.js"></script> <!-- Purecounter counter for statistics numbers -->  
 <script src="js/isotope.pkgd.min.js"></script> <!-- Isotope for filter -->  
 <script src="js/scripts.js"></script> <!-- Custom scripts -->  
 <script src="js/prism.js"></script>  
</body>  
</html>

# cautarebinara.html

<!DOCTYPE html>  
<html lang="en">  
  
<head>  
 <meta charset="utf-8">  
 <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">  
  
 <!-- SEO Meta Tags -->  
 <meta name="description" content="Your description">  
 <meta name="author" content="Your name">  
  
 <!-- OG Meta Tags to improve the way the post looks when you share the page on Facebook, Twitter, LinkedIn -->  
 <meta property="og:site\_name" content="" /> <!-- website name -->  
 <meta property="og:site" content="" /> <!-- website link -->  
 <meta property="og:title" content="" /> <!-- title shown in the actual shared post -->  
 <meta property="og:description" content="" /> <!-- description shown in the actual shared post -->  
 <meta property="og:image" content="" /> <!-- image link, make sure it's jpg -->  
 <meta property="og:url" content="" /> <!-- where do you want your post to link to -->  
 <meta name="twitter:card" content="summary\_large\_image"> <!-- to have large image post format in Twitter -->  
  
 <!-- Webpage Title -->  
 <title>Cautarea binara</title>  
  
 <!-- Styles -->  
 <link href="https://fonts.googleapis.com/css2?family=Open+Sans:ital,wght@0,400;0,600;0,700;1,400&display=swap"  
 rel="stylesheet">  
 <link href="https://fonts.googleapis.com/css2?family=Poppins:wght@600&display=swap" rel="stylesheet">  
 <link href="css/bootstrap.min.css" rel="stylesheet">  
 <link href="css/fontawesome-all.min.css" rel="stylesheet">  
 <link href="css/swiper.css" rel="stylesheet">  
 <link href="css/styles.css" rel="stylesheet">  
 <link href="css/prism.css" rel="stylesheet">  
  
  
  
 <!-- Favicon -->  
 <link rel="icon" href="images/favicon.png">  
</head>  
  
<body>  
 <!-- Navigation -->  
 <nav id="navbar" class="navbar navbar-expand-lg fixed-top navbar-dark" aria-label="Main navigation">  
 <div class="container">  
  
 <!-- Image Logo -->  
 <a class="navbar-brand logo-image" href="index.html"><img src="images/drona.jpg" alt="alternative"></a>  
  
 <!-- Text Logo - Use this if you don't have a graphic logo -->  
 <!-- <a class="navbar-brand logo-text" href="index.html">Desi</a> -->  
  
 <button class="navbar-toggler p-0 border-0" type="button" id="navbarSideCollapse"  
 aria-label="Toggle navigation">  
 <span class="navbar-toggler-icon"></span>  
 </button>  
  
 <div class="navbar-collapse offcanvas-collapse" id="navbarsExampleDefault">  
 <ul class="navbar-nav ms-auto navbar-nav-scroll">  
 <li class="nav-item">  
 <a class="nav-link active" aria-current="page" href="index.html">Acasa</a>  
 </li>  
 </ul>  
 </div> <!-- end of navbar-collapse -->  
 </div> <!-- end of container -->  
 </nav> <!-- end of navbar -->  
 <!-- end of navigation -->  
  
 <!-- Header -->  
 <header class="ex-header">  
 <div class="container">  
 <div class="row">  
 <div class="col-xl-10 offset-xl-1">  
 <h1>Cautarea binara</h1>  
 </div> <!-- end of col -->  
 </div> <!-- end of row -->  
 </div> <!-- end of container -->  
 </header> <!-- end of ex-header -->  
 <!-- end of header -->  
  
  
 <!-- Basic -->  
 <div class="ex-basic-1 pt-4">  
 <div class="container">  
 <div class="row">  
 <div class="col-xl-10 offset-xl-1">  
 <!--  
 <pre><code>  
 -->  
 <pre class="line-numbers"><code class="language-c">#include &lt;iostream>  
using namespace std;  
  
int main() {  
 int n, elem[1000000];  
 cin >> n;  
 for (int i = 0; i &lt; n; ++i) {  
 cin >> elem[i];  
 }  
 int cautat, a = 0, b = n, mediu;  
 cin >> cautat;  
 while (elem[a] != cautat && a &lt; b - 1) { // cautam elementul in intervalul a b  
 mediu = (a + b) / 2;  
 if (elem[mediu] > cautat) {  
 b = mediu;  
 }  
 else {  
 a = mediu;  
 }  
 }  
 if (elem[a] == cautat) {  
 cout &lt;&lt; a + 1 &lt;&lt; '\n';  
 }  
 else {  
 cout &lt;&lt; "Nu sa gasit!\n";  
 }  
 return 0;  
} </code></pre>  
 <p>  
 Acest algoritm primeste un vector de elemente sortat si cauta un element dat.  
 </p>  
 <h2 class="mb-3">Cum am gandit acest algoritm?</h2>  
 <p>La inceput citim vectorul si elementul cautat. Apoi ne folosim de o bucla pentru a cauta elementul.  
 In bucla folosim doua variabile pentru a retine intervalul in care cautam.  
 La fiecare pas comparm mijlocul intervalului cu elementul cautat.  
 Daca elementul este mai mare actualizam intervalul la juamtatea din dreapta, altfel la jumatatea din stanga.  
 Cand intervalul ajunge la un singur element iesim din bucla.  
 Daca elementul din interval este egal cu cel cautat ii afisam pozitia altfel spunem ca nu l-am gasit.  
 </p>  
 <p class="mb-4">La fiecare pas se injumatateste intervalul  
 astfel cautarea binara are complexitatea O(log n) si aici mai avem si citirea elementelor O(n).</p>  
 <h2 class="mb-3">La ce foloseste acest algoritm?</h2>  
 <p class="mb-4">Acest algoritm este folosit pentru a cauta anumite elemente in baze foarte mari de date foarte rapid.</p>  
 <a class="btn-solid-reg mb-5" href="index.html">Acasa</a>  
 </div> <!-- end of col -->  
 </div> <!-- end of row -->  
 </div> <!-- end of container -->  
 </div> <!-- end of ex-basic-1 -->  
 <!-- end of basic -->  
  
  
 <!-- Copyright -->  
 <div class="copyright">  
 <div class="container">  
 <div class="row">  
 <div class="col-lg-12">  
 <p class="p-small">Copyright © Teofil 2022</p>  
 </div> <!-- end of col -->  
 </div> <!-- enf of row -->  
  
 <div class="row">  
 <div class="col-lg-12">  
 <p class="p-small">Distributed by: <a href="https://themewagon.com/" target="\_blank"><u>Themewagon</u></a></p>  
 </div> <!-- end of col -->  
 </div> <!-- enf of row -->  
 </div> <!-- end of container -->  
 </div> <!-- end of copyright -->  
 <!-- end of copyright -->  
  
  
 <!-- Back To Top Button -->  
 <button onclick="topFunction()" id="myBtn">  
 <img src="images/up-arrow.png" alt="alternative">  
 </button>  
 <!-- end of back to top button -->  
  
 <!-- Scripts -->  
 <script src="js/bootstrap.min.js"></script> <!-- Bootstrap framework -->  
 <script src="js/swiper.min.js"></script> <!-- Swiper for image and text sliders -->  
 <script src="js/purecounter.min.js"></script> <!-- Purecounter counter for statistics numbers -->  
 <script src="js/isotope.pkgd.min.js"></script> <!-- Isotope for filter -->  
 <script src="js/scripts.js"></script> <!-- Custom scripts -->  
 <script src="js/prism.js"></script>  
</body>  
</html>

# parcurgereadancime.html

<!DOCTYPE html>  
<html lang="en">  
  
<head>  
 <meta charset="utf-8">  
 <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">  
  
 <!-- SEO Meta Tags -->  
 <meta name="description" content="Your description">  
 <meta name="author" content="Your name">  
  
 <!-- OG Meta Tags to improve the way the post looks when you share the page on Facebook, Twitter, LinkedIn -->  
 <meta property="og:site\_name" content="" /> <!-- website name -->  
 <meta property="og:site" content="" /> <!-- website link -->  
 <meta property="og:title" content="" /> <!-- title shown in the actual shared post -->  
 <meta property="og:description" content="" /> <!-- description shown in the actual shared post -->  
 <meta property="og:image" content="" /> <!-- image link, make sure it's jpg -->  
 <meta property="og:url" content="" /> <!-- where do you want your post to link to -->  
 <meta name="twitter:card" content="summary\_large\_image"> <!-- to have large image post format in Twitter -->  
  
 <!-- Webpage Title -->  
 <title>Parcurgerea in adancime</title>  
  
 <!-- Styles -->  
 <link href="https://fonts.googleapis.com/css2?family=Open+Sans:ital,wght@0,400;0,600;0,700;1,400&display=swap"  
 rel="stylesheet">  
 <link href="https://fonts.googleapis.com/css2?family=Poppins:wght@600&display=swap" rel="stylesheet">  
 <link href="css/bootstrap.min.css" rel="stylesheet">  
 <link href="css/fontawesome-all.min.css" rel="stylesheet">  
 <link href="css/swiper.css" rel="stylesheet">  
 <link href="css/styles.css" rel="stylesheet">  
 <link href="css/prism.css" rel="stylesheet">  
  
  
  
 <!-- Favicon -->  
 <link rel="icon" href="images/favicon.png">  
</head>  
  
<body>  
 <!-- Navigation -->  
 <nav id="navbar" class="navbar navbar-expand-lg fixed-top navbar-dark" aria-label="Main navigation">  
 <div class="container">  
  
 <!-- Image Logo -->  
 <a class="navbar-brand logo-image" href="index.html"><img src="images/drona.jpg" alt="alternative"></a>  
  
 <!-- Text Logo - Use this if you don't have a graphic logo -->  
 <!-- <a class="navbar-brand logo-text" href="index.html">Desi</a> -->  
  
 <button class="navbar-toggler p-0 border-0" type="button" id="navbarSideCollapse"  
 aria-label="Toggle navigation">  
 <span class="navbar-toggler-icon"></span>  
 </button>  
  
 <div class="navbar-collapse offcanvas-collapse" id="navbarsExampleDefault">  
 <ul class="navbar-nav ms-auto navbar-nav-scroll">  
 <li class="nav-item">  
 <a class="nav-link active" aria-current="page" href="index.html">Acasa</a>  
 </li>  
 </ul>  
 </div> <!-- end of navbar-collapse -->  
 </div> <!-- end of container -->  
 </nav> <!-- end of navbar -->  
 <!-- end of navigation -->  
  
 <!-- Header -->  
 <header class="ex-header">  
 <div class="container">  
 <div class="row">  
 <div class="col-xl-10 offset-xl-1">  
 <h1>Parcurgerea in adancime</h1>  
 </div> <!-- end of col -->  
 </div> <!-- end of row -->  
 </div> <!-- end of container -->  
 </header> <!-- end of ex-header -->  
 <!-- end of header -->  
  
  
 <!-- Basic -->  
 <div class="ex-basic-1 pt-4">  
 <div class="container">  
 <div class="row">  
 <div class="col-xl-10 offset-xl-1">  
 <!--  
 <pre><code>  
 -->  
 <pre class="line-numbers"><code class="language-c">#include &lt;iostream>  
#include &lt;vector>  
#include &lt;bitset>  
using namespace std;  
  
// gaseste numarul de componente conexe ale unui graf neorientat parcurgand pe fiecare in adancime  
  
const int size = 100000;  
bitset &lt;size> finded;  
vector&lt;int> nodes[size];  
  
void run(int i) { // parcurge in adancime  
 finded[i] = true;  
 for (int to : nodes[i]) {  
 if (!finded[to]) {  
 run(to);  
 }  
 }  
}  
  
int main() {  
 int nr, m, conex = 0;  
 for (cin >> nr >> m; m; --m) { // citire noduri  
 int x, y;  
 cin >> x >> y;  
 nodes[x].push\_back(y);  
 nodes[y].push\_back(x);  
 }  
   
 for (int i = 1; i &lt;= nr; ++i) { // pentru fiecare nod neparcurs notam o componenta conexa  
 if (!finded[i]) {  
 run(i);  
 ++conex;  
 }  
 }  
 cout &lt;&lt; conex &lt;&lt; '\n';  
 return 0;  
} </code></pre>  
 <p>  
 Acest algoritm primeste un graf neorientat si returneaza numarul de componente conexe.  
 </p>  
 <h2 class="mb-3">Cum am gandit acest algoritm?</h2>  
 <p>La inceput citim muchile (cele 2 elemete de la capatul muchiei)  
 si le unim adaugandu-l pe fiecare in lista de vecini a celuilalt.  
 Ne folosim de alt vector pentru a retine daca elementele au mai fost parcurse si parcurgem cu un for toate elementele.  
 Daca un element nu a mai fost parcurs adaugam unu la numarul componentelor conexe si incepem parcurgerea in adancime din el.  
 Parcurgerea in adancime se realizeaza cu o functie recursiva.  
 Aceasta marcheaza nodul actual ca parcurs, apoi intr-un for verifica toti vecinii lui  
 si cheama functia recursiva pentru cei neparcursi.  
 </p>  
 <p class="mb-4">Astfel avem o complexitate in timp de O(n + m) si a memoriei de O(n^2).</p>  
 </div> <!-- end of col -->  
 </div> <!-- end of row -->  
 </div> <!-- end of container -->  
 </div> <!-- end of ex-basic-1 -->  
 <!-- end of basic -->  
  
  
 <!-- Basic -->  
 <div class="ex-basic-1 pt-3 pb-5">  
 <div class="container">  
 <div class="row">  
 <div class="col-xl-10 offset-xl-1">  
 <h2 class="mb-4">La ce foloseste acest algoritm?</h2>  
 <ul class="list-unstyled li-space-lg mb-5">  
 <li class="d-flex">  
 <i class="fas fa-square"></i>  
 <div class="flex-grow-1"><strong>Rețele de calculatoare</strong>  
 (stabilirea unei topologii fără bucle / arbore de acoperire)</div>  
 </li>  
 <li class="d-flex">  
 <i class="fas fa-square"></i>  
 <div class="flex-grow-1"><strong>Pagini Web</strong>  
 (algoritmi de căutare - Google PageRank)</div>  
 </li>  
 <li class="d-flex">  
 <i class="fas fa-square"></i>  
 <div class="flex-grow-1"><strong>Rețele sociale</strong>  
 (sugestii de prietenie pe Facebook)</div>  
 </li>  
 <li class="d-flex">  
 <i class="fas fa-square"></i>  
 <div class="flex-grow-1"><strong>Hărți cu drumuri</strong>  
 (drum minim între două localități)</div>  
 </li>  
 <li class="d-flex">  
 <i class="fas fa-square"></i>  
 <div class="flex-grow-1"><strong>Rețele de transport</strong>  
 (retele de curieri)</div>  
 </li>  
 </ul>  
  
 <a class="btn-solid-reg mb-5" href="index.html">Acasa</a>  
 </div> <!-- end of col -->  
 </div> <!-- end of row -->  
 </div> <!-- end of container -->  
 </div> <!-- end of ex-basic-1 -->  
 <!-- end of basic -->  
  
 <!-- Copyright -->  
 <div class="copyright">  
 <div class="container">  
 <div class="row">  
 <div class="col-lg-12">  
 <p class="p-small">Copyright © Teofil 2022</p>  
 </div> <!-- end of col -->  
 </div> <!-- enf of row -->  
  
 <div class="row">  
 <div class="col-lg-12">  
 <p class="p-small">Distributed by: <a href="https://themewagon.com/"  
 target="\_blank"><u>Themewagon</u></a></p>  
 </div> <!-- end of col -->  
 </div> <!-- enf of row -->  
 </div> <!-- end of container -->  
 </div> <!-- end of copyright -->  
 <!-- end of copyright -->  
  
  
 <!-- Back To Top Button -->  
 <button onclick="topFunction()" id="myBtn">  
 <img src="images/up-arrow.png" alt="alternative">  
 </button>  
 <!-- end of back to top button -->  
  
 <!-- Scripts -->  
 <script src="js/bootstrap.min.js"></script> <!-- Bootstrap framework -->  
 <script src="js/swiper.min.js"></script> <!-- Swiper for image and text sliders -->  
 <script src="js/purecounter.min.js"></script> <!-- Purecounter counter for statistics numbers -->  
 <script src="js/isotope.pkgd.min.js"></script> <!-- Isotope for filter -->  
 <script src="js/scripts.js"></script> <!-- Custom scripts -->  
 <script src="js/prism.js"></script>  
</body>  
  
</html>

# combinari.html

<!DOCTYPE html>  
<html lang="en">  
  
<head>  
 <meta charset="utf-8">  
 <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">  
  
 <!-- SEO Meta Tags -->  
 <meta name="description" content="Your description">  
 <meta name="author" content="Your name">  
  
 <!-- OG Meta Tags to improve the way the post looks when you share the page on Facebook, Twitter, LinkedIn -->  
 <meta property="og:site\_name" content="" /> <!-- website name -->  
 <meta property="og:site" content="" /> <!-- website link -->  
 <meta property="og:title" content="" /> <!-- title shown in the actual shared post -->  
 <meta property="og:description" content="" /> <!-- description shown in the actual shared post -->  
 <meta property="og:image" content="" /> <!-- image link, make sure it's jpg -->  
 <meta property="og:url" content="" /> <!-- where do you want your post to link to -->  
 <meta name="twitter:card" content="summary\_large\_image"> <!-- to have large image post format in Twitter -->  
  
 <!-- Webpage Title -->  
 <title>Combinari</title>  
  
 <!-- Styles -->  
 <link href="https://fonts.googleapis.com/css2?family=Open+Sans:ital,wght@0,400;0,600;0,700;1,400&display=swap"  
 rel="stylesheet">  
 <link href="https://fonts.googleapis.com/css2?family=Poppins:wght@600&display=swap" rel="stylesheet">  
 <link href="css/bootstrap.min.css" rel="stylesheet">  
 <link href="css/fontawesome-all.min.css" rel="stylesheet">  
 <link href="css/swiper.css" rel="stylesheet">  
 <link href="css/styles.css" rel="stylesheet">  
 <link href="css/prism.css" rel="stylesheet">  
  
  
  
 <!-- Favicon -->  
 <link rel="icon" href="images/favicon.png">  
</head>  
  
<body>  
 <!-- Navigation -->  
 <nav id="navbar" class="navbar navbar-expand-lg fixed-top navbar-dark" aria-label="Main navigation">  
 <div class="container">  
  
 <!-- Image Logo -->  
 <a class="navbar-brand logo-image" href="index.html"><img src="images/drona.jpg" alt="alternative"></a>  
  
 <!-- Text Logo - Use this if you don't have a graphic logo -->  
 <!-- <a class="navbar-brand logo-text" href="index.html">Desi</a> -->  
  
 <button class="navbar-toggler p-0 border-0" type="button" id="navbarSideCollapse"  
 aria-label="Toggle navigation">  
 <span class="navbar-toggler-icon"></span>  
 </button>  
  
 <div class="navbar-collapse offcanvas-collapse" id="navbarsExampleDefault">  
 <ul class="navbar-nav ms-auto navbar-nav-scroll">  
 <li class="nav-item">  
 <a class="nav-link active" aria-current="page" href="index.html">Acasa</a>  
 </li>  
 </ul>  
 </div> <!-- end of navbar-collapse -->  
 </div> <!-- end of container -->  
 </nav> <!-- end of navbar -->  
 <!-- end of navigation -->  
  
 <!-- Header -->  
 <header class="ex-header">  
 <div class="container">  
 <div class="row">  
 <div class="col-xl-10 offset-xl-1">  
 <h1>Combinari</h1>  
 </div> <!-- end of col -->  
 </div> <!-- end of row -->  
 </div> <!-- end of container -->  
 </header> <!-- end of ex-header -->  
 <!-- end of header -->  
  
  
 <!-- Basic -->  
 <div class="ex-basic-1 pt-4">  
 <div class="container">  
 <div class="row">  
 <div class="col-xl-10 offset-xl-1">  
 <!--  
 <pre><code>  
 -->  
 <pre class="line-numbers"><code class="language-c">#include &lt;iostream>  
#include &lt;vector>  
using namespace std;  
  
int main() {  
 int n, k;  
 cin >> n >> k;  
 if (k > n) {  
 cout &lt;&lt; "Wrong input!\n";  
 return 0;  
 }  
 vector&lt;int> elements(k + 1);  
  
 int index = 0;  
 while (!elements[0]) {  
 for (int i = index; i &lt; k; ++i) { // recalculates the elements after  
 elements[i + 1] = elements[i] + 1;  
 }  
 index = k;  
 for (int i = 1; i &lt;= k; ++i) { // show elements  
 cout &lt;&lt; elements[i] &lt;&lt; ' ';  
 }  
 cout &lt;&lt; '\n';  
 while (elements[index] == n - k + index && index) { // find element to be changed  
 --index;  
 }  
 ++elements[index];  
 }  
 return 0;  
} </code></pre>  
 <p>  
 Acest algoritm primeste numerele n si k si afiseaza toate combinarile de n luate cate k.  
 </p>  
 <h2 class="mb-3">Cum am gandit acest algoritm?</h2>  
 <p>Citim numerele n si k. Avem o bucla care afiseaza fiecare combinare posibila si este formata din 3 parti.  
 Ne folosim de o variabila ca sa stim de unde trebuie schimbam elementele.  
 In prima parte actualizam elementele de dupa acea variabila care initial este egala cu 0;  
 Dupa actualizam variabila la valoarea lu k.  
 Afisam elementele cu un for, apoi calculam pozitia variabilei la variabila cea mai din dreapta care mai poate fi marita.  
 In cazul in care al doilea element din vector a ajuns la capat (primul afisat) va creste primul element din lista.  
 In acest caz inseamna ca s-au afisat toate combinarile si iesim din bucla.  
 </p>  
 <h2 class="mb-3">La ce foloseste acest algoritm?</h2>  
 <p class="mb-4">Acest algoritm este de timp backtracking si ne ajuta sa folosim viteza mare a calculatorului  
 pentru a lucra cu o multime mare de elemente care au anumite proprietati.</p>  
 <a class="btn-solid-reg mb-5" href="index.html">Acasa</a>  
 </div> <!-- end of col -->  
 </div> <!-- end of row -->  
 </div> <!-- end of container -->  
 </div> <!-- end of ex-basic-1 -->  
 <!-- end of basic -->  
  
  
 <!-- Copyright -->  
 <div class="copyright">  
 <div class="container">  
 <div class="row">  
 <div class="col-lg-12">  
 <p class="p-small">Copyright © Teofil 2022</p>  
 </div> <!-- end of col -->  
 </div> <!-- enf of row -->  
  
 <div class="row">  
 <div class="col-lg-12">  
 <p class="p-small">Distributed by: <a href="https://themewagon.com/" target="\_blank"><u>Themewagon</u></a></p>  
 </div> <!-- end of col -->  
 </div> <!-- enf of row -->  
 </div> <!-- end of container -->  
 </div> <!-- end of copyright -->  
 <!-- end of copyright -->  
  
  
 <!-- Back To Top Button -->  
 <button onclick="topFunction()" id="myBtn">  
 <img src="images/up-arrow.png" alt="alternative">  
 </button>  
 <!-- end of back to top button -->  
  
 <!-- Scripts -->  
 <script src="js/bootstrap.min.js"></script> <!-- Bootstrap framework -->  
 <script src="js/swiper.min.js"></script> <!-- Swiper for image and text sliders -->  
 <script src="js/purecounter.min.js"></script> <!-- Purecounter counter for statistics numbers -->  
 <script src="js/isotope.pkgd.min.js"></script> <!-- Isotope for filter -->  
 <script src="js/scripts.js"></script> <!-- Custom scripts -->  
 <script src="js/prism.js"></script>  
</body>  
</html>

# xand0/index.html

<!DOCTYPE html>  
<html>  
  
<head>  
 <title>X and 0</title>  
 <link href='https://fonts.googleapis.com/css?family=ABeeZee' rel='stylesheet'>  
 <link href="https://fonts.googleapis.com/css2?family=Sriracha&display=swap" rel="stylesheet">  
 <link rel="stylesheet" href="design.css">  
 <script type="text/javascript" src="functions.js"></script>  
</head>  
  
<body onload="Start()">  
 <div class="Elements">  
 <div class="Panel" style="height: 400px;">  
 <div class="Line" style="left: 138px; width: 20px; height: 320px;"></div>  
 <div class="Line" style="right: 138px; width: 20px; height: 320px;"></div>  
 <div class="Line" style="top: 138px; width: 320px; height: 20px;"></div>  
 <div class="Line" style="bottom: 138px; width: 320px; height: 20px;"></div>  
 <div id="ShowResult" style="display: none"></div>  
 <table>  
 <tbody>  
 <tr>  
 <th></th>  
 <th></th>  
 <th></th>  
 </tr>  
 <tr>  
 <th></th>  
 <th></th>  
 <th></th>  
 </tr>  
 <tr>  
 <th></th>  
 <th></th>  
 <th></th>  
 </tr>  
 </tbody>  
 </table>  
 </div>  
  
 <div class="Panel" style="height: 250px;">  
 <div id="Score" style="margin-top: 10px; height: 0">  
 Score&nbsp&nbsp 0 : 0  
 </div>  
 <div id="Next" style="margin-top: 60px; height: 0">  
 Next: &nbsp&nbspX  
 </div>  
 <div>  
 <button class="Buttons" style="margin-top: 70px;" onclick="Reset()">Reset</button>  
 </div>  
 </div>  
  
 <div class="Panel" style="height: 250px; display: none;">  
 <div id="Winner" style="margin-top: 0px; height: 0">  
 Winner  
 </div>  
 <div>  
 <button class="Buttons" style="margin-top: 80px;" onclick="ClearMap()">Ok</button>  
 </div>  
 </div>  
 </div>  
</body>  
  
</html>

# xand0/design.css

:root {  
 --bgColor: rgb(20, 20, 20);  
 --elemColor: rgb(40, 40, 40);  
 --shadow: #222;  
 --themeColor: #bb86fc;  
 --secondaryColor: #00b6a4;  
 --text: white;  
}  
  
body {  
 margin: 0px;  
 font-family: 'Sriracha';  
 font-weight: 100;  
 font-size: 26px;  
 color: var(--text);  
 background-color: var(--bgColor);  
 user-select: none;  
}  
  
.Elements {  
 position: absolute;  
 width: 100%;  
 height: 100%;  
 display: flex;  
 justify-content: space-evenly;  
}  
  
.Panel {  
 position: relative;  
 width: 400px;  
 border-radius: 20px;  
 background-color: var(--elemColor);  
 display: flex;  
 justify-content: center;  
 align-items: center;  
 flex-direction: column;  
}  
  
table {  
 font-size: 40px;  
 font-family: 'ABeeZee';  
 border-spacing: 5px 5px;  
}  
  
th {  
 height: 95px;  
 width: 95px;  
 border-radius: 10px;  
 background-color: var(--panel);  
}  
  
.Buttons {  
 height: 60px;  
 width: 100px;  
 border-radius: 20px;  
 font-family: 'Sriracha';  
 font-weight: 1000;  
 font-size: 26px;  
 color: var(--elemColor);  
 border: 4px solid var(--secondaryColor);  
 background-color: var(--secondaryColor);  
 box-shadow: 0 5px var(--shadow);  
 transition: background 0.3s linear, color 0.3s linear, transform 0.03s linear;  
}  
  
.Buttons:hover {  
 color: var(--text);  
 background-color: var(--panelColor);  
}  
  
.Buttons:active {  
 box-shadow: 0 3px var(--shadow);  
 transform: translateY(1px);  
}  
  
.Line {  
 position: absolute;  
 border-radius: 5px;  
 background-color: var(--themeColor);  
}  
  
#ShowResult {  
 position: absolute;  
 width: 14px;  
 height: 300px;  
 border-radius: 5px;  
 background-color: var(--secondaryColor);  
}  
  
@media (max-width: 1000px) {  
 .Elements {  
 height: 1000px;  
 flex-direction: column;  
 }  
  
 .Panel {  
 left: 50%;  
 transform: translate(-50%, 0);  
 }  
}  
  
@media (min-width: 1000px) {  
 .Panel {  
 top: 50%;  
 transform: translate(0, -50%);  
 }  
}

# xand0/functions.js

var buttons = document.getElementsByTagName("th");  
var panels = document.getElementsByClassName("Panel");  
var used = new Array(9).fill(0);  
var options = ["X", "0"], score = [0, 0];  
var next = 0, moves = 0, finished = false, angle = 0;  
  
function Start() {  
 angle = 0;  
 for (var i = 0; i < 9; i++) {  
 buttons[i].textContent = "";  
 buttons[i].addEventListener('click', Press.bind(null, i));  
 buttons[i].addEventListener('mouseover', Enter.bind(null, i));  
 buttons[i].addEventListener('mouseleave', Leave.bind(null, i));  
 }  
}  
  
function Press(i) {  
 if (!used[i] && !finished) { // If button is not used and game not ended  
 buttons[i].textContent = options[next];  
 used[i] = next + 1;  
 next = (next + 1) % 2;  
 document.getElementById("Next").textContent = "Next: \xa0\xa0" + options[next];  
 VerifyWinner();  
 }  
}  
  
function Enter(i) { // On mouse over  
 if (!used[i] && !finished) {  
 buttons[i].style.backgroundColor = "rgb(59, 59, 59)";  
 }  
}  
  
function Leave(i) { // On mouse leave  
 buttons[i].style.backgroundColor = "rgb(40, 40, 40)";  
}  
  
function VerifyWinner() {  
 moves++;  
 for (var i = 0; i < 3; i++) {  
 var lineX = [0, 0], lineY = [0, 0];  
 for (var j = 0; j < 3; j++) {  
 if (used[j \* 3 + i]) {  
 lineY[used[j \* 3 + i] - 1]++;  
 }  
 if (used[j + i \* 3]) {  
 lineX[used[j + i \* 3] - 1]++;  
 }  
 }  
 if (lineX[0] > 2 || lineX[1] > 2) {  
 SetLine(300, (-205 + 205 \* i), 0, 90);  
 }  
 if (lineY[0] > 2 || lineY[1] > 2) {  
 SetLine(300, 0, (-205 + 205 \* i), 0);  
 }  
 if (lineY[0] > 2 || lineX[0] > 2) { // Win x  
 Winner(0);  
 return;  
 }  
 if (lineY[1] > 2 || lineX[1] > 2) { // Win 0  
 Winner(1);  
 return;  
 }  
 }  
 if (used[0] == used[4] && used[4] == used[8] && used[8] > 0) { // win on diagonal  
 SetLine(350, 0, 0, -45);  
 Winner(used[0] - 1);  
 }  
 if (used[2] == used[4] && used[4] == used[6] && used[6] > 0) {  
 SetLine(350, 0, 0, 45);  
 Winner(used[2] - 1);  
 }  
 if (!finished && moves == 9) { // if all buttons are used  
 Winner(2);  
 return;  
 }  
}  
  
function SetLine(ln, tp, lft, dg) {  
 document.getElementById('ShowResult').style.height = ln + "px";  
 document.getElementById('ShowResult').style.marginTop = tp + "px";  
 document.getElementById('ShowResult').style.marginLeft = lft + "px";  
 document.getElementById('ShowResult').style.transform = "rotate(" + dg + "deg)";  
}  
  
function Winner(player) {  
 finished = true;  
 document.getElementById("Winner").textContent = "Draw";  
 if (player < 2) { // if is not draw  
 score[player]++;  
 document.getElementById("Winner").textContent = "Winner: \xa0\xa0" + options[(next + 1) % 2];  
 document.getElementById('ShowResult').style.display = 'flex';  
 }  
 panels[1].style.display = 'none';  
 panels[2].style.display = 'flex';  
}  
  
function ClearMap() {  
 finished = false;  
 moves = 0;  
 for (var i = 0; i < 9; i++) { // remove text from all buttons  
 used[i] = 0;  
 buttons[i].textContent = "";  
 }  
 document.getElementById('ShowResult').style.display = 'none';  
 document.getElementById('Score').textContent = "Score \xa0\xa0" + score[0] + " : " + score[1]; // Update score  
 document.getElementById("Next").textContent = "Next: \xa0\xa0" + options[next];  
 panels[1].style.display = 'flex';  
 panels[2].style.display = 'none';  
}  
  
function Reset() { // Reset button  
 score = [0, 0];  
 next = 0;  
 ClearMap();  
}