**ДОДАТКИ**

**ДОДАТОК А– Лістинг коду JavaScript**

window.onload = function(){

var panelHeight = 50;

var canvas = document.getElementById('pole');

var bg = document.getElementById('canva');

canvas.width = bg.offsetWidth;

canvas.height = bg.offsetHeight - 50;

document.getElementById('fonr').style.display = 'none';

var context = canvas.getContext('2d');

var pole = new OCR();

pole.setContext(context);

pole.setSize(canvas.width,canvas.height);

canvas.onmouseup = function(e) {

pole.mouseup(e);

};

canvas.onmousedown = function(e) {

pole.mousedown(e);

};

canvas.onclick = function(e) {

pole.click(e);

};

canvas.onmousemove = function(e) {

pole.mousemove(e);

};

canvas.ondblclick = function(e) {

pole.dblclick(e);

};

document.getElementById('enter').onclick = function(e) {

var t = document.getElementById('text').value;

document.getElementById('search').value = t;

document.getElementById('fonr').style.display = 'none';

}

document.getElementById('clear').onclick = function(e) {

document.getElementById('text').value = document.getElementById('text').value.slice(0,-1);

}

}

// Конструктор об’єктів для кожного з символів

function map() {

this.char = '-';

this.p = [];

this.width = 30;

this.height = 30;

}

// Конструктор основного об’єкта

function OCR () {

var timer = null;

var l = 1;

var lmax = 1

var c = false;

var context;

var cX = 0,cY = 50;

var h = 0,w = 0;

var px = 0, py = 0;

var size = Array();

// задає поле для малювання

this.setContext = function(c){

context = c;

};

// задає розміри полотна для малювання

this.setSize = function(w1,h1){

w = w1;

h = h1;

l = w;

lmax = w;

};

// метод який відповідає за малювання стмволів

this.draw = function (e) {

var x = e.pageX-cX;

var y = e.pageY-cY;

context.beginPath();

context.moveTo(px, py);

context.lineTo(x, y);

context.lineWidth = 40;

// context.strokeStyle = "#000000";

context.lineCap = "round";

context.stroke();

px = x;

py = y;

};

// метод для малювання точки

this.drawpointer = function (e) {

var x = e.pageX-cX;

var y = e.pageY-cY;

px = x;

py = y;

context.fillStyle = '#000000';

context.beginPath();

context.arc(x, y, 20, 0, Math.PI\*2, false);

context.closePath();

context.fill();

}

// метод який відповідає за роботу таймера

this.timetik = function (d) {

l += w\*d/40;

if (l > lmax) { l = lmax};

if (l < 0) {l = 0};

this.drawstatus(l);

if (l == 0 && !c) {

clearInterval(timer);

this.recognize();

}

if(l == lmax && !c){

clearInterval(timer);

var \_this = this;

timer = setInterval(function() { \_this.timetik(-1) },20);

}

};

// метод який відповідає за відображення статуса малювання

this.drawstatus = function (i) {

context.clearRect(0,0,w,3);

var gradient = context.createLinearGradient(0,0,w,3);

gradient.addColorStop(0, '#F00');

gradient.addColorStop(1, '#FF0');

context.fillStyle = gradient;

context.fillRect(0,0,i,3);

};

// метод який починає розпізнавання

this.recognize = function () {

this.cut();

context.clearRect(0,0,w,h);

};

// метод який обрізає межі зображення

this.cut = function(){

var imgd = context.getImageData(0, 0, w, h);

var pix = imgd.data;

size.t = h;

size.b = 0;

size.l = w;

size.r = 0;

var m = false;

for(var i = 0; i < w; i++){

for(var j = 0; j < h; j++){

var n = (j\*w+i)\*4;

if (pix[n+3] > 100) {

if (size.t > j) {

size.t = j;

};

if (size.b < j) {

size.b = j;

};

if (size.l > i) {

size.l = i;

};

if (size.r < i) {

size.r = i;

};

m = true;

};

}

m = false;

}

var can = document.getElementById('mini');

var can2 = document.getElementById('pole');

var ctx = can.getContext('2d');

var mw = size.r - size.l+1;

var mh = size.b - size.t+1;

var ch = 30;

var cw = Math.round(ch\*mw/mh);

can.width = cw;

can.height = ch;

if(mh < 50){

console.log('error');

return;

}

ctx.drawImage(can2, size.l, size.t, mw, mh, 0, 0, cw, ch);

var imgd = ctx.getImageData(0, 0, cw, ch);

var pix = imgd.data;

var p = [];

for(var j = 0; j < ch; j++){

p[j] = [];

for(var i = 0; i < cw; i++){

var n = (j\*cw+i)\*4;

if (pix[n+3] > 100) {

p[j][i] = '1';

}else{

p[j][i] = '0';

};

}

}

var m = new map;

m.p = p;

m.width = cw;

m.height = ch;

// console.log(JSON.stringify(m));

var c = this.getChar(m);

var t = document.getElementById('text');

t.value = t.value + c;

};

// метод який порівнює намальований символ з еталонними

this.getChar = function(m) {

var k = 0;

var c = '';

for (var i = 0; i < maps.length; i++) {

var kk = this.www(m,maps[i]);

if(kk > k){

k = kk;

c = maps[i].char;

};

};

console.log(c,k);

return c;

}

// метод який повертає коефіцієнт схожості намальованого символа з еталонним

this.www = function(m1, m2) {

var k = 0;

var p1 = m1.p;

var p2 = m2.p;

if((m1.width\*2 < m2.width) || (m1.width/2 > m2.width)){

return 0;

}

for (var h = 1; h < m1.height-1; h++) {

for (var w = 1; w < m1.width-1; w++) {

var w2 = Math.round(w\*m2.width/m1.width);

if(p1[h][w] == p2[h][w2]){

k+=5;

}else{

if(p2[h][w2] == '1'){

if(p1[h][w+1] == '1'){ k++; }else{ k--;}

if(p1[h][w-1] == '1'){ k++; }else{ k--;}

if(p1[h+1][w] == '1'){ k++; }else{ k--;}

if(p1[h-1][w] == '1'){ k++; }else{ k--;}

}

// k-=1;

}

};

};

return (k\*100) / (5\*m1.height\*m1.width);

}

// метод який контролює припинення малювання

this.mouseup = function(e) {

c = false;

};

// метод який відповідає початку малюванню

this.mousedown = function(e) {

c = true;

clearInterval(timer);

var \_this = this;

timer = setInterval(function() { \_this.timetik(1) },10);

this.drawpointer(e);

};

// метод який спрацьовує під час малювання

this.mousemove = function(e) {

if(c){

this.draw(e);

}

};

// метод очищення поля для малювання

this.dblclick = function(e) {

context.clearRect(0,0,w,h);

};

}

**ДОДАТОК Б – Лістинг об’єкта-еталона цифри ‘9’**

var maps = [

{"char":"9","p":[

["0","0","0","0","0","0","0","0","0","1","1","1","1","1","1","0","0","0","0"],

["0","0","0","0","0","0","0","1","1","1","1","1","1","1","1","1","0","0","0"],

["0","0","0","0","0","0","1","1","1","1","1","1","1","1","1","1","1","0","0"],

["0","0","0","0","0","1","1","1","1","1","1","1","1","1","1","1","1","1","0"],

["0","0","0","0","0","1","1","1","1","1","0","0","0","1","1","1","1","1","1"],

["0","0","0","0","1","1","1","1","1","0","0","0","0","0","1","1","1","1","1"],

["0","0","0","0","1","1","1","1","0","0","0","0","0","0","1","1","1","1","1"],

["0","0","0","0","1","1","1","1","0","0","0","0","0","0","1","1","1","1","1"],

["0","0","0","0","1","1","1","1","0","0","0","0","0","0","1","1","1","1","1"],

["0","0","0","0","1","1","1","1","0","0","0","0","0","0","1","1","1","1","1"],

["0","0","0","0","1","1","1","1","0","0","0","0","0","0","1","1","1","1","0"],

["0","0","0","0","1","1","1","1","0","0","0","0","0","1","1","1","1","1","0"],

["0","0","0","0","1","1","1","1","1","0","0","1","1","1","1","1","1","1","0"],

["0","0","0","0","1","1","1","1","1","1","1","1","1","1","1","1","1","1","0"],

["0","0","0","0","0","1","1","1","1","1","1","1","1","1","1","1","1","0","0"],

["0","0","0","0","0","0","1","1","1","1","1","1","1","1","1","1","1","0","0"],

["0","0","0","0","0","0","0","0","1","1","1","1","0","1","1","1","1","0","0"],

["0","0","0","0","0","0","0","0","0","0","0","0","0","1","1","1","1","0","0"],

["0","0","0","0","0","0","0","0","0","0","0","0","1","1","1","1","1","0","0"],

["0","0","0","0","0","0","0","0","0","0","0","0","1","1","1","1","0","0","0"],

["0","0","0","0","0","0","0","0","0","0","0","0","1","1","1","1","0","0","0"],

["1","1","1","1","0","0","0","0","0","0","0","0","1","1","1","1","0","0","0"],

["1","1","1","1","0","0","0","0","0","0","0","1","1","1","1","1","0","0","0"],

["1","1","1","1","0","0","0","0","0","0","0","1","1","1","1","0","0","0","0"],

["1","1","1","1","0","0","0","0","0","0","1","1","1","1","1","0","0","0","0"],

["1","1","1","1","1","0","0","0","0","0","1","1","1","1","1","0","0","0","0"],

["0","1","1","1","1","1","1","1","1","1","1","1","1","1","0","0","0","0","0"],

["0","1","1","1","1","1","1","1","1","1","1","1","1","0","0","0","0","0","0"],

["0","0","1","1","1","1","1","1","1","1","1","1","0","0","0","0","0","0","0"],

["0","0","0","1","1","1","1","1","1","1","1","0","0","0","0","0","0","0","0"]

],"width":19,"height":30}

];

**ДОДАТОК В – Лістинг коду HTML**

<!DOCTYPE HTML>

<html>

<head>

<meta http-equiv="Content-Type" content="text/html;charset=utf-8" />

<title>Test OCR</title>

<meta content="" name="description" />

<meta content="" name="keywords" />

<link type="text/css" href="styles.css" rel="stylesheet" />

<script type="text/javascript" src="ocr.lib.js"></script>

<script type="text/javascript" src="main.js"></script>

</head>

<body>

<div class="wrapper">

<div class="placeholder">

<input id="search" type="text" placeholder="пошук" class="text-input" name="s" onclick="document.getElementById('fonr').style.display = 'block';return false;">

<button class="btn go modern embossed-link">GO</button>

</div>

<div id="fonr" style="display: block;">

<div id="panel">

<canvas id="mini" height="30" width="30" style="display:none">Прийшов час щось змінити у Вашому житті!!!</canvas>

<input id="text" type="text" class="text-input">

<button class="btn modern embossed-link" onclick="document.getElementById('fonr').style.display = 'none';return false;" >CLOSE</button>

<button id="enter" class="btn modern embossed-link">ENTER</button>

<button id="clear" class="btn modern embossed-link">< C</button>

</div>

<div id="canva">

<canvas id="pole" height="0" width="0">Прийшов час щось змінити у Вашому житті!!!</canvas>

</div>

</div>

</div>

</body>

</html>

**ДОДАТОК Г – Лістинг коду CSS**

\* {

margin: 0;

padding: 0;

border: 0;

font-size: 100%;

vertical-align: baseline;

position: relative;

}

.wrapper {

margin: 0 auto;

width: 600px;

}

.placeholder {

margin: 100px 0 14px;

position: relative;

height: 47px;

background: #fff;

border: #b8b8b8 1px solid;

border-radius: 5px;

box-shadow: 0 1px 1px rgba(0,0,0,0.12) inset;

}

.text-input {

width: 520px;

height: 34px;

padding: 6px 10px 7px 11px;

margin: 0;

font-family: 'PT Sans', sans-serif;

font-size: 26px;

font-weight: 400;

background: white;

border: none;

border-radius: 5px;

outline: none;

text-align: center;

}

.btn {

float:right;

margin: 2px;

height: 44px;

cursor: pointer;

}

.btn.go {

margin-top: -46px;

width: 54px;

}

#fonr {

background: rgba(0,0,0,0.7);

bottom: 0;

height: 100%;

left: 0;

position: fixed;

right: 0;

top: 0;

width: 100%;

z-index: 1;

display: none;

}

#panel {

height: 50px;

width: 100%;

background-color: rgba(255,255,255,0.9);

text-align: center;

}

#canva {

cursor: pointer;

width: 100%;

height: 100%;

-moz-user-select: none;

-khtml-user-select: none;

-webkit-user-select: none;

}

#pole { position: absolute; }

#mini {

width: 50px;

width: 50%;\*/

}

.modern {

display: inline-block;

padding: 8px;

background: #ddd;

border: 1px solid rgba(0,0,0,0.15);

border-radius: 4px;

transition: all 0.3s ease-out;

text-decoration: none;

text-shadow: 0 1px rgba(255,255,255,0.7);

}

.modern:hover { background: #eee }

.modern.embossed-link {

box-shadow:

inset 0 1px 0 rgba(255,255,255,0.5),

0 2px 2px rgba(0,0,0,0.3),

0 0 4px 1px rgba(0,0,0,0.1),

inset 0 3px 2px rgba(255,255,255,.22),

inset 0 -3px 2px rgba(0,0,0,.15),

inset 0 20px 10px rgba(255,255,255,.12);

}

.modern.embossed-link:active {

box-shadow:

inset 0 -2px 1px rgba(255,255,255,0.2),

inset 0 3px 2px rgba(0,0,0,0.12);

}