Ex.1

int dict [][2] = {{0B00000000, 0},

{0B11111111, 8}};

int botao = 2;

int a = 3;

int b = 4;

int c = 5;

int d = 6;

int e = 7;

int f = 8;

int g = 9;

int contador = 0;

int incremento = 0;

int segmentos [] = {a,b,c,d,e,f,g};

bool ultimoEstadoBotao = LOW;

bool contadorAtivo = false;

int search(int n){

for(int i=0;i<2;i++){

if (dict[i][1]==n)

return dict[i][0];

}

return 0;

}

//Void Setup

void setup(){

pinMode(botao, INPUT);

for(contador; contador <=9 ; contador++){

pinMode(contador, OUTPUT);

}

Serial.begin(9600);

}

void loop() {

bool estadoBotao = digitalRead(botao);

if (estadoBotao == HIGH && ultimoEstadoBotao == LOW) {

contadorAtivo = !contadorAtivo;

delay(50);

}

ultimoEstadoBotao = estadoBotao;

if (contadorAtivo) {

incremento++;

if (incremento > 9) {

incremento = 0;

}

delay(500);

}

ligaLeds(incremento);

}

void ligaLeds(int numero){

switch (numero) {

case 0:

digitalWrite(a, HIGH);

digitalWrite(b, HIGH);

digitalWrite(c, HIGH);

digitalWrite(d, HIGH);

digitalWrite(e, HIGH);

digitalWrite(f, HIGH);

digitalWrite(g, LOW);

break;

case 1:

digitalWrite(a, LOW);

digitalWrite(b, HIGH);

digitalWrite(c, HIGH);

digitalWrite(d, LOW);

digitalWrite(e, LOW);

digitalWrite(f, LOW);

digitalWrite(g, LOW);

break;

case 2:

digitalWrite(a, HIGH);

digitalWrite(b, HIGH);

digitalWrite(c, LOW);

digitalWrite(d, HIGH);

digitalWrite(e, HIGH);

digitalWrite(f, LOW);

digitalWrite(g, HIGH);

break;

case 3:

digitalWrite(a, HIGH);

digitalWrite(b, HIGH);

digitalWrite(c, HIGH);

digitalWrite(d, HIGH);

digitalWrite(e, LOW);

digitalWrite(f, LOW);

digitalWrite(g, HIGH);

break;

case 4:

digitalWrite(a, LOW);

digitalWrite(b, HIGH);

digitalWrite(c, HIGH);

digitalWrite(d, LOW);

digitalWrite(e, LOW);

digitalWrite(f, HIGH);

digitalWrite(g, HIGH);

break;

case 5:

digitalWrite(a, HIGH);

digitalWrite(b, LOW);

digitalWrite(c, HIGH);

digitalWrite(d, HIGH);

digitalWrite(e, LOW);

digitalWrite(f, HIGH);

digitalWrite(g, HIGH);

break;

case 6:

digitalWrite(a, HIGH);

digitalWrite(b, LOW);

digitalWrite(c, HIGH);

digitalWrite(d, HIGH);

digitalWrite(e, HIGH);

digitalWrite(f, HIGH);

digitalWrite(g, HIGH);

break;

case 7:

digitalWrite(a, HIGH);

digitalWrite(b, HIGH);

digitalWrite(c, HIGH);

digitalWrite(d, LOW);

digitalWrite(e, LOW);

digitalWrite(f, LOW);

digitalWrite(g, LOW);

break;

case 8:

digitalWrite(a, HIGH);

digitalWrite(b, HIGH);

digitalWrite(c, HIGH);

digitalWrite(d, HIGH);

digitalWrite(e, HIGH);

digitalWrite(f, HIGH);

digitalWrite(g, HIGH);

break;

case 9:

digitalWrite(a, HIGH);

digitalWrite(b, HIGH);

digitalWrite(c, HIGH);

digitalWrite(d, HIGH);

digitalWrite(e, LOW);

digitalWrite(f, HIGH);

digitalWrite(g, HIGH);

break;

}

}

Ex.2

int dict [][2] = {{0B00000000, 0},

{0B11111111, 8}};

int botao = 2;

int a = 3;

int b = 4;

int c = 5;

int d = 6;

int e = 7;

int f = 8;

int g = 9;

int contador = 0;

int incremento = 0;

int segmentos [] = {a,b,c,d,e,f,g};

bool ultimoEstadoBotao = LOW;

bool contadorAtivo = false;

int search(int n){

for(int i=0;i<2;i++){

if (dict[i][1]==n)

return dict[i][0];

}

return 0;

}

//Void Setup

void setup(){

pinMode(botao, INPUT);

for(contador; contador <=9 ; contador++){

pinMode(contador, OUTPUT);

}

Serial.begin(9600);

}

void loop() {

bool estadoBotao = digitalRead(botao);

if (estadoBotao == HIGH && ultimoEstadoBotao == LOW) {

contadorAtivo = !contadorAtivo;

delay(50);

}

ultimoEstadoBotao = estadoBotao;

if (contadorAtivo) {

incremento++;

if (incremento > 9) {

incremento = 0;

}

delay(500);

}

ligaLeds(incremento);

}

void ligaLeds(int numero){

switch (numero) {

case 0:

digitalWrite(a, HIGH);

digitalWrite(b, HIGH);

digitalWrite(c, HIGH);

digitalWrite(d, HIGH);

digitalWrite(e, LOW);

digitalWrite(f, HIGH);

digitalWrite(g, HIGH);

break;

case 1:

digitalWrite(a, HIGH);

digitalWrite(b, HIGH);

digitalWrite(c, HIGH);

digitalWrite(d, HIGH);

digitalWrite(e, HIGH);

digitalWrite(f, HIGH);

digitalWrite(g, HIGH);

break;

case 2:

digitalWrite(a, HIGH);

digitalWrite(b, HIGH);

digitalWrite(c, HIGH);

digitalWrite(d, LOW);

digitalWrite(e, LOW);

digitalWrite(f, LOW);

digitalWrite(g, LOW);

break;

case 3:

digitalWrite(a, HIGH);

digitalWrite(b, LOW);

digitalWrite(c, HIGH);

digitalWrite(d, HIGH);

digitalWrite(e, HIGH);

digitalWrite(f, HIGH);

digitalWrite(g, HIGH);

break;

case 4:

digitalWrite(a, HIGH);

digitalWrite(b, LOW);

digitalWrite(c, HIGH);

digitalWrite(d, HIGH);

digitalWrite(e, LOW);

digitalWrite(f, HIGH);

digitalWrite(g, HIGH);

break;

case 5:

digitalWrite(a, LOW);

digitalWrite(b, HIGH);

digitalWrite(c, HIGH);

digitalWrite(d, LOW);

digitalWrite(e, LOW);

digitalWrite(f, HIGH);

digitalWrite(g, HIGH);

break;

case 6:

digitalWrite(a, HIGH);

digitalWrite(b, HIGH);

digitalWrite(c, HIGH);

digitalWrite(d, HIGH);

digitalWrite(e, LOW);

digitalWrite(f, LOW);

digitalWrite(g, HIGH);

break;

case 7:

digitalWrite(a, HIGH);

digitalWrite(b, HIGH);

digitalWrite(c, LOW);

digitalWrite(d, HIGH);

digitalWrite(e, HIGH);

digitalWrite(f, LOW);

digitalWrite(g, HIGH);

break;

case 8:

digitalWrite(a, LOW);

digitalWrite(b, HIGH);

digitalWrite(c, HIGH);

digitalWrite(d, LOW);

digitalWrite(e, LOW);

digitalWrite(f, LOW);

digitalWrite(g, LOW);

break;

case 9:

digitalWrite(a, HIGH);

digitalWrite(b, HIGH);

digitalWrite(c, HIGH);

digitalWrite(d, HIGH);

digitalWrite(e, HIGH);

digitalWrite(f, HIGH);

digitalWrite(g, LOW);

break;

}

}

Ex. 3

int dict[][2] = {{0B00000000, 0},

{0B11111111, 8}};

int botao = 2;

int a = 3;

int b = 4;

int c = 5;

int d = 6;

int e = 7;

int f = 8;

int g = 9;

int contador = 0;

int incremento = 0;

int segmentos[] = {a, b, c, d, e, f, g};

bool ultimoEstadoBotao = LOW;

bool contadorAtivo = false;

bool incrementando = true;

int search(int n)

{

for (int i = 0; i < 2; i++)

{

if (dict[i][1] == n)

return dict[i][0];

}

return 0;

}

void setup()

{

pinMode(botao, INPUT);

for (contador; contador <= 9; contador++)

{

pinMode(contador, OUTPUT);

}

Serial.begin(9600);

}

void loop()

{

bool estadoBotao = digitalRead(botao);

if (estadoBotao == HIGH && ultimoEstadoBotao == LOW)

{

contadorAtivo = !contadorAtivo;

delay(50);

}

ultimoEstadoBotao = estadoBotao;

if (contadorAtivo)

{

if (incrementando)

{

incremento++;

if (incremento > 9)

{

incrementando = false;

incremento = 8;

}

}

else

{

incremento--;

if (incremento < 0)

{

incrementando = true;

incremento = 1;

}

}

delay(500);

}

ligaLeds(incremento);

}

void ligaLeds(int numero)

{

switch (numero)

{

case 0:

digitalWrite(a, HIGH);

digitalWrite(b, HIGH);

digitalWrite(c, HIGH);

digitalWrite(d, HIGH);

digitalWrite(e, HIGH);

digitalWrite(f, HIGH);

digitalWrite(g, LOW);

break;

case 1:

digitalWrite(a, LOW);

digitalWrite(b, HIGH);

digitalWrite(c, HIGH);

digitalWrite(d, LOW);

digitalWrite(e, LOW);

digitalWrite(f, LOW);

digitalWrite(g, LOW);

break;

case 2:

digitalWrite(a, HIGH);

digitalWrite(b, HIGH);

digitalWrite(c, LOW);

digitalWrite(d, HIGH);

digitalWrite(e, HIGH);

digitalWrite(f, LOW);

digitalWrite(g, HIGH);

break;

case 3:

digitalWrite(a, HIGH);

digitalWrite(b, HIGH);

digitalWrite(c, HIGH);

digitalWrite(d, HIGH);

digitalWrite(e, LOW);

digitalWrite(f, LOW);

digitalWrite(g, HIGH);

break;

case 4:

digitalWrite(a, LOW);

digitalWrite(b, HIGH);

digitalWrite(c, HIGH);

digitalWrite(d, LOW);

digitalWrite(e, LOW);

digitalWrite(f, HIGH);

digitalWrite(g, HIGH);

break;

case 5:

digitalWrite(a, HIGH);

digitalWrite(b, LOW);

digitalWrite(c, HIGH);

digitalWrite(d, HIGH);

digitalWrite(e, LOW);

digitalWrite(f, HIGH);

digitalWrite(g, HIGH);

break;

case 6:

digitalWrite(a, HIGH);

digitalWrite(b, LOW);

digitalWrite(c, HIGH);

digitalWrite(d, HIGH);

digitalWrite(e, HIGH);

digitalWrite(f, HIGH);

digitalWrite(g, HIGH);

break;

case 7:

digitalWrite(a, HIGH);

digitalWrite(b, HIGH);

digitalWrite(c, HIGH);

digitalWrite(d, LOW);

digitalWrite(e, LOW);

digitalWrite(f, LOW);

digitalWrite(g, LOW);

break;

case 8:

digitalWrite(a, HIGH);

digitalWrite(b, HIGH);

digitalWrite(c, HIGH);

digitalWrite(d, HIGH);

digitalWrite(e, HIGH);

digitalWrite(f, HIGH);

digitalWrite(g, HIGH);

break;

case 9:

digitalWrite(a, HIGH);

digitalWrite(b, HIGH);

digitalWrite(c, HIGH);

digitalWrite(d, HIGH);

digitalWrite(e, LOW);

digitalWrite(f, HIGH);

digitalWrite(g, HIGH);

break;

}

}

Ex.4

int ledCount = 3;

int led[] = {3, 4, 5};

void setup() {

for (int i = 0; i < ledCount; i++) {

pinMode(led[i], OUTPUT);

}

}

void loop() {

int interval = 5;

for (int i = 0; i < ledCount; i++) {

digitalWrite(led[i], HIGH);

delay(interval);

digitalWrite(led[i], LOW);

delay(interval);

interval \*= 1.15;

if (interval > 5000) {

interval = 5000;

}

}

}

Ex.5

const int ledCount = 3;

int ledPins[] = {3, 4, 5};

void setup() {

for (int i = 0; i < ledCount; i++) {

pinMode(ledPins[i], OUTPUT);

}

}

void loop() {

int interval = 5000;

for (int i = 0; i < ledCount; i++) {

digitalWrite(ledPins[i], HIGH);

delay(interval);

digitalWrite(ledPins[i], LOW);

interval \*= 0.8;

if (interval < 5) {

interval = 5;

}

}

}

Ex.6

int vermelho = 3;

int amarelo = 4;

int verde = 5;

int tempo\_intermitente = 1000;

int botao = 2;

void setup(){

pinMode(vermelho, OUTPUT);

pinMode(amarelo, OUTPUT);

pinMode(verde, OUTPUT);

pinMode(botao, INPUT);

}

void loop(){

bool estadoBotao = false;

estadoBotao = digitalRead(botao);

controlaCor(vermelho, 2000, true);

controlaCor(verde, 2000, true);

controlaCor(amarelo, 2000, true);

}

int controlaCor (int cor, int tempo, bool esta\_no\_loop) {

digitalWrite(cor, 1);

delay(tempo);

digitalWrite(cor, 0);

if(esta\_no\_loop == false){

delay(tempo);

return 0;

}

else{

return 1;

}

}

Ex.7

int botao = 6;

int led = 4;

int estadoBotao = 0;

int botaoClick = 0;

int clicks = 0;

unsigned long lastDebounceTime = 0;

const int debounceDelay = 50;

unsigned long ultIntervalo = 0;

int intervalo = 1000;

void setup() {

pinMode(botao, INPUT);

pinMode(led, OUTPUT);

digitalWrite(led, LOW);

}

void loop() {

int reading = digitalRead(botao);

if (reading != botaoClick) {

lastDebounceTime = millis();

}

if ((millis() - lastDebounceTime) > debounceDelay) {

if (reading != estadoBotao) {

estadoBotao = reading;

if (estadoBotao == HIGH) {

clicks++;

}

}

}

if (clicks > 0 && (millis() - ultIntervalo >= intervalo)) {

for (int i = 0; i < clicks; i++) {

digitalWrite(led, HIGH);

delay(100);

digitalWrite(led, LOW);

delay(100);

}

clicks = 0;

ultIntervalo = millis();

}

botaoClick = reading;

}

Ex. 8

const int mov = 2;

const int led = 13;

bool estadoLed = false;

unsigned long motionDetectedTime = 0;

const unsigned long motionDuration = 5000;

void setup() {

pinMode(mov, INPUT);

pinMode(led, OUTPUT);

digitalWrite(led, LOW);

}

void loop() {

if (digitalRead(mov) == HIGH) {

digitalWrite(led, HIGH);

motionDetectedTime = millis();

estadoLed = true;

}

if (estadoLed && (millis() - motionDetectedTime >= motionDuration)) {

digitalWrite(led, LOW);

estadoLed = false;

}

}

Ex.9

int botao1 = 4;

int botao2 = 6;

int led = 3;

int estadoBotao1 = 0;

int estadoBotao2 = 0;

bool estadoLed = false;

void setup() {

pinMode(botao1, INPUT);

pinMode(botao2, INPUT);

pinMode(led, OUTPUT);

}

void loop() {

estadoBotao1 = digitalRead(botao1);

estadoBotao2 = digitalRead(botao2);

if (estadoBotao1 == HIGH && estadoBotao2 == HIGH) {

while (estadoBotao1 == HIGH && estadoBotao2 == HIGH) {

digitalWrite(led, HIGH);

delay(1000);

digitalWrite(led, LOW);

delay(1000);

estadoBotao1 = digitalRead(botao1);

estadoBotao2 = digitalRead(botao2);

}

} else {

if (estadoBotao1 == HIGH) {

digitalWrite(led, HIGH);

estadoLed = true;

} else if (estadoBotao2 == HIGH) {

digitalWrite(led, LOW);

estadoLed = false;

}

}

}

Ex.10

int botao1 = 4;

int botao2 = 6;

int led = 3;

int estadoBotao1 = 0;

int estadoBotao2 = 0;

void setup() {

pinMode(botao1, INPUT);

pinMode(botao2, INPUT);

pinMode(led, OUTPUT);

}

void loop() {

estadoBotao1 = digitalRead(botao1);

estadoBotao2 = digitalRead(botao2);

if (estadoBotao1 == HIGH && estadoBotao2 == LOW) {

digitalWrite(led, HIGH);

} else if (estadoBotao1 == LOW && 2 == HIGH) {

digitalWrite(led, HIGH);

} else {

digitalWrite(led, LOW);

}

}