```
boolean Ansicht1; //welcome page
boolean Ansicht2; //game page
boolean Ansicht3; //help page
boolean Ansicht4; //game over page


//import the fonts
PFont italics;
PFont normal;
PFont bold;
PFont CenturyGothic;

int Level; //what level 1,2 or 3
int x; //used for the position and motion of the background picture
int x2; //used for the position and motion of the background picture
int Score; //score, how many coins collected

int yT; //y position of the figure

//different speed levels, can be quickly changed
int speedlevel1;
int speedlevel2;
int speedlevel3;
int speedAktuell;

PImage Level1;
PImage Level2;
PImage Level3;
PImage LevelAktuell;
PImage Startbild;
PImage Startbild2;
PImage Teufel;
PImage Coin;
PImage Obstacle;

//import sound
import processing.sound.*;

SoundFile music, gameover, coin;

//arrays for the x and y positions of the obstacles
int[] xObstacles = new int[6];
int[] yObstacles = new int[6];
int ObstacleSpeed = 2;

//arrays for the x and y positions of the coins
int[] xCoins = new int[6];
int[] yCoins = new int[6];




void setup() {

  size(900, 600);
  frameRate(120);



//set all the variables, beginning of the game
  Level=1;
  x=0;
  x2=9156;
  Score=0;
```

```
yT=300; //middle of the screen


speedlevel1=4;
speedlevel2=8;
speedlevel3=12;
speedAktuell = speedlevel1;



Ansicht1=true;//beginning with the start page
Ansicht2=false;
Ansicht3=false;
Ansicht4=false;




Level1=loadImage("Level1.jpg");
Level2=loadImage("Level2.jpg");
Level3=loadImage("Level3.jpg");
LevelAktuell = Level1;
Startbild=loadImage("Startbild.jpg");
Teufel=loadImage("Figur.png");
Startbild2=loadImage("Startbild2.jpg");
Coin=loadImage("coin.png");
Obstacle=loadImage("pierre4.png");



music= new SoundFile(this,"01 Title Theme.mp3");
gameover= new SoundFile(this,"gameover.wav");
coin= new SoundFile(this,"coin.wav");

music.play(); //plays the music automatically
music.loop();
```

```
}


void draw() {


  //import or create the fonts
  italics= loadFont("Rockwell-Italic-18.vlw");
  normal= loadFont("Rockwell-Regular-18.vlw");
  bold= loadFont("Rockwell-Bold-18.vlw");
  CenturyGothic = createFont("Century Gothic", 50);



  if (keyPressed) {
    //motion of the figure
    if (key==CODED) {
      if (keyCode==UP && yT>-20) {
        yT=yT-speedAktuell;
      }
      if (keyCode==DOWN && yT<480) {
        yT=yT+speedAktuell;
      }
    }

    if (key==ENTER) {
      //change to start page
      Ansicht1=true;
    }

    if (key==' ') {
      //launches the game
      Ansicht2=true;
      Ansicht1=false;
      Ansicht3=false;
  Ansicht4=false;


  Score=0;

  x=0;

  x2=9156;

  yT=300;


  //set the values of the obstacles

  for (int i = 0; i < yObstacles.length; i++){

   yObstacles[i] = int(random(0, 500));

  }

  xObstacles[0] = 900;

  for (int i = 1; i < xObstacles.length; i++){

   xObstacles[i] = xObstacles[i-1] + int(random(200, 300));

  }


  //set the values of the coins

  for (int i = 0; i < yCoins.length; i++){

   yCoins[i] = int(random(0, 500));

  }

  xCoins[0] = 900;

  for (int i = 1; i < xCoins.length; i++){

   xCoins[i] = xCoins[i-1] + int(random(200, 300));

  }

 }


if (key=='h') {

 //change to help page

  Ansicht4=true;

}

}
```

```
//welcome page
if (Ansicht1==true) {


  Ansicht2=false;
  Ansicht3=false;
  Ansicht4=false;


  //text
  textAlign(LEFT);
  imageMode(CORNER);
  image(Startbild, 0, 0);
  noStroke();
  fill(255, 50);
  rect(0, 0, 900, 600);
  textSize(30);
  fill(#61029D);
  textFont(normal);
  textSize(32);


  text("Welcome to VILEAN", 45, 100);




  textFont(normal);
  textSize(24);
  text("Press 'SPACE' to start.", 45, 200);
  text("If help needed, press 'h'.", 45, 250);


  //set the variables as normal
  x=0;
  x2=9156;
  yT=300;
}

//Game page
if (Ansicht2==true) {

  Ansicht1=false;
  Ansicht3=false;
  Ansicht4=false;

  if (Level==1)

  {

    speedAktuell = speedlevel1;
    LevelAktuell = Level1;
    ObstacleSpeed=speedlevel1+1;
  }

  if (Level==2)

  {
    speedAktuell = speedlevel2;
    LevelAktuell = Level2;
    ObstacleSpeed=speedlevel2+1;
  }

  if (Level==3)
```

```
{
  speedAktuell = speedlevel3;
  LevelAktuell = Level3;
  ObstacleSpeed=speedlevel3+1;
}

image(LevelAktuell, x, 0, 9156, 600);
image(LevelAktuell, x2, 0, 9156, 600);
image(Teufel, 0, yT, 130, 130);
fill(0);
textSize(30);

//motion of the background
x=x-speedAktuell;
x2=x2-speedAktuell;

if (x<= -9156)
{
  x = 9156;
} else if (x2 <= -9156)
{
  x2 = 9156;
}



//Obstacle Generation
for (int i = 0; i < xObstacles.length; i++) {

  //Image Motion
  image(Obstacle, xObstacles[i], yObstacles[i], 100, 100);
  xObstacles[i]-=ObstacleSpeed;
  //Collision obstacles
  if (xObstacles[i] < 90 && xObstacles[i] > 0 ) {
    if (yT > yObstacles[i] - 100 && yT <  yObstacles[i] + 80) {
      Ansicht3 = true;
      gameover.play();
    }
  }

  //recreating obstacles out of the frame
  if (xObstacles[0] < -100) {
    xObstacles[0] = xObstacles[5] + int(random(200, 300));
    yObstacles[0] = int(random(0, 500));
  }
}

for (int i = 1; i < xObstacles.length; i++) {
  if (xObstacles[i] < -100) {

    yObstacles[i] = int(random(0, 500));

    if (xObstacles[i-1] < 900) {
      xObstacles[i] = 900;
    } else {
      xObstacles[i] = xObstacles[i-1] + int(random(200, 300));
    }
  }
}

//Coin Generation
for (int i = 0; i < xCoins.length; i++) {
  //Coin Motion
  image(Coin, xCoins[i], yCoins[i], 60, 60);
  xCoins[i]-=ObstacleSpeed;

  //coins collision
  if (xCoins[i] < 90 && xCoins[i] > 0) {
    if (yT > yCoins[i] - 80 && yT <  yCoins[i] + 80) {
      Score++;
      coin.play();
      //recreate the coins
      if(i == 0){
        xCoins[0] = xCoins[5] + int(random(200, 300));
        yCoins[0] = int(random(0, 500));
      }

      //recreate the coins
      else{
        if (xCoins[i-1] < 900) {
          xCoins[i] = 900;
        }
        else {
          xCoins[i] = xCoins[i-1] + int(random(200, 300));
        }
      }
    }
  }

  if (xCoins[0] < -60) {
    xCoins[0] = xCoins[5] + int(random(200, 300));
    yCoins[0] = int(random(0, 500));
  }
}
```

```
  for (int i = 1; i < xCoins.length; i++) {
    if (xCoins[i] < -100) {

      yCoins[i] = int(random(0, 500));

      if (xCoins[i - 1] < 900) {
        xCoins[i] = 900;
      } else {
        xCoins[i] = xCoins[i - 1] + int(random(200, 300));
      }
    }
  }
  text("Score:", 700, 40);
  text(Score, 800, 40);
}


//Game over
if (Ansicht3==true) {
  Ansicht1=false;
  Ansicht2=false;
  Ansicht4=false;

  imageMode(CORNER);
  image(LevelAktuell, 0, 0);

  //text and layout
  textFont(CenturyGothic);
  smooth();
  textAlign(CENTER, CENTER);
  textSize(120);
  fill(233, 2, 2);
  text("GAME OVER", 450, 215);



  textSize(60);
  fill(255);
  text("Your Score: "+Score, 450, 420);

  textFont(normal);

  textSize(25);

  text("Press 1, 2 or 3 to switch the level" , 450, 515);
  text("Press 'SPACE' to restart" , 450, 550);

  textFont(normal);
}



//help page
if (keyPressed&&key=='h') {
  Ansicht4=true;

  Ansicht1=false;
  Ansicht2=false;
  Ansicht3=false;



  //text and images, layout
  textAlign(CENTER,CENTER);
```

```
    imageMode(CORNER);
    image(Startbild2, 0, 0);
    noStroke();
    fill(255, 50);
    rect(0, 0, width, height);
    fill(#61029D);
    noStroke();
    textFont(bold);
    textSize(36);
    text("Help page", 450, 70);
    textFont(normal);
    textSize(18);
    textAlign(LEFT,CENTER);
    circle(45,160,7);
    text("The goal of the game is to collect as many coins as possible.", 60, 160);
    circle(45,200,7);
    text("You can move vertically using the keys 'UP' and 'DOWN'.", 60, 200);
    circle(45,240,7);
    text("End of the game: When you crash into one of the obstacles, the game stops immediately.", 60, 240);
    circle(45,280,7);
    text("Levels: ", 60, 280);
    textFont(italics);
    textSize(18);
    text("Level easy", 250, 340);
    text("Level medium", 250, 380);
    text("Level hard", 250, 420);
    textAlign(RIGHT,CENTER);
    text("press '1'",650,340);
    text("press '2'",650,380);
    text("press '3'",650,420);
    textAlign(CENTER,CENTER);
    textFont(bold);
    textSize(30);
    text("Press 'SPACE' to start.", 450, 515);
    textFont(normal);
    text("Press 'ENTER' to go back to welcome page.", 450, 560);
  }
//change the levels, not possible while playing
if (keyPressed&&Ansicht1==true||Ansicht3==true||Ansicht4==true) {

      if (key=='1') {
        Level=1;
      }

      if (key=='2') {
        Level=2;
      }

      if (key=='3') {
        Level=3;
      }
}
}




/*OUR SOURCES FOR THE GAME AND THE MUSIC OR PICTURES USED

https://forum.processing.org/one/topic/indexoutofboundsexception-26-11-2012.html
https://www.remove.bg/fr/upload
https://www.namecheap.com/logo-maker/
```

https://www.youtube.com/watch?v=I6fG1wneXWo&themeRefresh=1

https://processing.org/reference/

https://pixabay.com/fr/sound-effects/

https://de.freepik.com/fotos-vektoren-kostenlos/spiel-hintergrun

https://archive.org/details/zelda-ocarina-of-time-ost/%5BN64%5D+The+Legend+of+Zelda+Ocarina+of+Time+Original+Soundtrack/01+Title+Theme.flac

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