

# Primjena elektroničkih računala

Programska podrška  
(software)

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# Programska podrška

## **RAČUNALO**

**STROJNA  
OPREMA (HW)**

**PROGRAMSKA  
PODRŠKA (SW)**

Fizički dijelovi računala uključujući vanjske i unutarnje sastavnice (npr. kućište, prikazivač, tipkovnica,...) - sklopovlje

Programi koji upravljaju i „upravljaju” radom računala



# Programska podrška

*Neophodna na svakom računalu!*

## 1. Sustavska (sistemska)

Svi programski dijelovi koji korisniku omogućavaju lakše i učinkovitije korištenje raspoložive strojne i programske opreme

## 2. Korisnička ili primijenjena

Programi namijenjeni rješavanju konkretnih problema ili zadataka

*Korisnik ih odabire, prema potrebi...*



# Programska podrška

- Operativni sustav (OS) - neophodan program za rad na računalu – upravlja cjelokupnim djelovanjem računala.
- Pogonski programi (Driveri) - omogućuju komuniciranje OS-a s uređajima ugrađenim ili povezanim s računalom (modem, grafička kartica,..); instalirani su za većinu poznatih uređaja –"PLUG AND PLAY" tj. priključi i koristi
- Pomoćni (Tools) i uslužni (Utility) programi - pomažu operacijskom sustavu u izvođenju specijaliziranih poslova
- Programi za razvoj i izvođenje drugih programa Programi prevoditelji, pretraživači pogrešaka, programski jezici i njihovi alati



# Programska podrška

- **PROGRAM**

- konačan skup naredbi razumljivih računalu koji rješavaju neki zadatak ili problem
- upute računalu za rad

- **PROGRAMSKI JEZIK**

- umjetni jezik koji služi za izradu programa
- sadrži rječnik i skup gramatičkih pravila (sintaksa) pomoću kojih se izrađuju naredbe



# Programska podrška

- Pomoćni programi

- Uređivači teksta (Gedit, kate, notepad++, vim, nano...)
- Programi za crtanje (Inkscape, GIMP...)
- Programi za animaciju (Blender)
- Snimanje CD-a (Brasero, K3b...)
- Kalkulator, snimanje, kontrola glasnoće, adresar...
- Alati sustava (System Tools) - čišćenje diska, defragmentacija diska, informacije o sustavu, sigurnosna kopija i vraćanje sustava (Backup & Restore)
- Forenzički alati i rootkiti (unhide, chrootkit, rkhunter, tiger...)



# Programska podrška

- Blender, VLC – primjeri
  - Blender & Bullet Physic
  - Caminandes
  - Elephants Dream
  - Big Buck Bunny
  - Tears of Steel
  - Sintel





# Big Buck Bunny (2008)

[SEE RANK](#)

10 min - Animation | Short | Comedy - 10 April 2008 (Netherlands)



Your rating: ★★★★★★★★ -/10

Ratings: 6.8/10 from 1,369 users

Reviews: 6 user

'Big' Buck wakes up in his rabbit hole, only to be pestered by three critters, Gimera, Frank and Rinky. When Gimera kills a butterfly, Buck decides on a payback Predator-style

Director: [Sacha Goedegebure](#)

Writers: [Sacha Goedegebure](#) (script), [Sacha Goedegebure](#) (story)

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Next »

### Tears of Steel (2012)

Short | Sci-Fi

★★★★★☆☆☆☆ 5.6/10

He just wanted to be awesome in space.

Director: [Ian Hubert](#)

Stars: [Derek de Lint](#), [Sergio Hasselbaink](#),...

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# Big Buck Bunny

From Wikipedia, the free encyclopedia



This article **relies on references to primary sources**. Please add references to **secondary or tertiary sources**. *(September 2012)*

**Big Buck Bunny** (code-named **Peach**) is a short [computer-animated comedy film](#) by the Blender Institute, part of the [Blender Foundation](#).<sup>[4][5]</sup> Like the foundation's previous film *Elephants Dream*, the film was made using [Blender](#), a [free software](#) application for animation made by the same foundation. It was released as an [Open Source](#) film under [Creative Commons License Attribution 3.0](#).<sup>[6]</sup>

## Contents [hide]

- Overview
- Plot
- Technical information
  - Improvements to Blender for Big Buck Bunny
- Characters
- Film trailer
- See also
- References
- External links

## Overview [edit]

Work began in October 2007. The film was officially released in an April 10, 2008 *première* in Amsterdam<sup>[7]</sup> while online movie downloads and files were released on May 30, 2008.<sup>[8]</sup>

The film was followed up with an open game titled *Yo Frankie!*, in August 2008.

## Plot [edit]

The plot follows a day of the life of Big Buck Bunny when he meets three bullying rodents, Frank (the leader of the rodents), Rinky and Gamera. The rodents amuse themselves by harassing helpless creatures of the forest by throwing fruits, nuts and rocks at them.

After the deaths of two of Bunny's favorite butterflies (one by an apple falling on top of it and the other by Frank smashing it with a rock) and an offensive attack on Bunny himself, Bunny sets aside his gentle nature and orchestrates a complex plan to avenge the two butterflies.

## Big Buck Bunny



Movie Poster

<b>Directed by</b>	<b>Sacha Goedegebure</b>
<b>Produced by</b>	<b>Ton Roosendaal</b>
<b>Written by</b>	<b>Sacha Goedegebure</b>
<b>Music by</b>	<b>Jan Morgenstern</b>
<b>Release dates</b>	April 10, 2008 (Amsterdam <i>première</i> ) <sup>[1]</sup> May 20, 2008 <sup>[2]</sup>
<b>Running time</b>	10 minutes
<b>Budget</b>	€150,000 <sup>[3]</sup>





Contact the Filmmakers on IMDbPro »

# Tears of Steel (2012)

[SEE RANK](#)

12 min - Short | Sci-Fi - 26 September 2012 (UK)



Your rating: ★★★★★★★★ -/10

Ratings: 5.6/10 from 817 users

Reviews: 5 user | 1 critic

He just wanted to be awesome in space.

Director: [Ian Hubert](#)

Writer: [Ian Hubert](#)

Stars: [Derek de Lint](#), [Sergio Hasselbaink](#), [Rogier Schippers](#) |

[See full cast and crew »](#)

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[Tears Of Steel \(2012\) Short Film, Photos, Poster: Ian Hubert, Jody Bhe](#)

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### Sintel (2010)

Animation | Short | Fantasy

★★★★★★★☆☆ 7.6/10

The film follows a girl named Sintel who is searching for a baby dragon she calls Scales. A flashback reveals that Sintel found Scales with its wing injured and helped care for it, forming...

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# Tears of Steel

From Wikipedia, the free encyclopedia



This article **relies on references to primary sources**. Please add references to [secondary](#) or [tertiary sources](#). (*September 2012*)

***Tears of Steel*** is a [live-action/CGI short film](#) by producer [Ton Roosendaal](#) and director/writer Ian Hubert. The film was made using new enhancements to the [visual effects](#) capabilities of [Blender](#), a free and [open source](#) all-in-one [3D computer graphics software package](#).

## Contents [hide]

- Overview
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- Technical information
  - Improvements to Blender
- Reception
- References
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## Overview [edit]

Work began in early 2012 as the Mango Open Movie Project. The film is a combination of live-action and [computer generated](#) sets, props and special effects. It was officially released online for viewing and download on September 26, 2012.<sup>[1]</sup>

Following *Elephants Dream*, *Big Buck Bunny*, *Yo Frankie* and *Sintel*, the short movie is the fifth project from the [Blender Foundation](#). *Tears of Steel* was created by the Blender Institute, a division of the foundation set up specifically to facilitate the creation of [open content](#) films and games.<sup>[2]</sup>

The film was funded by the Blender Foundation, donations from the Blender community, pre-sales of the film's DVD, the [Netherlands Film Fund](#) and Cinegrid Amsterdam. The film itself and any material made in the studio are released under the [Creative Commons Attribution License](#).<sup>[3]</sup>

## Plot [edit]

The short [science fiction film](#) is about a group of warriors and scientists who gather at the "Oude Kerk" in a future [Amsterdam](#) to stage a crucial event from the past in a desperate attempt to rescue the world from destructive robots.<sup>[4]</sup>

### *Tears of Steel*



Promotional poster

<b>Directed by</b>	Ian Hubert
<b>Produced by</b>	<a href="#">Ton Roosendaal</a>
<b>Written by</b>	Ian Hubert
<b>Starring</b>	<a href="#">Derek de Lint</a> , <a href="#">Sergio Hasselbaink</a> , <a href="#">Rogier Schippers</a> , <a href="#">Vanja Rukavina</a> , <a href="#">Denise Rebergen</a> , <a href="#">Jody Bhe</a> , <a href="#">Chris Haley</a>
<b>Music by</b>	<a href="#">Joram Letwory</a>
<b>Cinematography</b>	<a href="#">Joris Kerbosch</a>



# Programska podrška

- Kodi
  - DE, WM, OS?



# Programska podrška

14°C

Mon, 26 Mar 2012 | 2:53 PM

ATHER

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# Programska podrška

- Uslužni programi
  - Antivirusni programi (ClamAV, Avast, AVG, BitDefender...)
  - Komprimiranje (Zip, Rar, 7zip, tar, gzip...)
  - Kodiranje (morituri, jack, dvdrip...)
  - Anti-spyware/-adware (Lavasoft Ad-aware, Spybot Search & Destroy...)
  - Multimedia (VLC, Totem, Kodi),
  - Glazba (Audacity, rhythmbox, clementine, lastfm...)





# Programska podrška

- Primjenjeni programi sa specifičnom namjenom:
- Obrada teksta - LibreOffice (OpenOffice) Writer, Lyx, Latex...
- Izrada proračunskih tablica - LibreOffice Spreadsheet
- Izradu prezentacija - LibreOffice Presentation, Prezi
- Rad s bazama podataka - Kexi, ReCALL, MySQL Query Browser
- Izrada web stranica - TinyMcu, Kompozer
- Crtanje i obrada slika – ImageJ, Inkscape, GIMP...



# Programska podrška

- Inkscape
- GIMP



# Programska podrška

- Primjenjeni programi sa specifičnom namjenom:
  - Za pregledavanja Interneta:
    - Pregled sadržaja na mreži: Firefox, IE, Google Chrome, Opera
  - Za pregledavanje e-mail-a: Thunderbird
  - Slanje i primanje podataka: FTP, utorrent, Transmission,...
  - Kominiciranje u stvarnom vremenu: Pidgin, Skype, ICQ, IRC
- Integrirani programski paketi (LibreOffice)
- Edukativni programi
- Programi za zabavu i igranje...



# Programska podrška

- Primjenjeni programi
  - Za pregledavanja
    - Pregled sadržaja
  - Za pregledavanje e-n
  - Slanje i primanje pod
  - Komuniciranje u stvar
- Integrirani programski pa
- Edukativni programi
- Programi za zabavu i igr



# Programska podrška

- Podjela prema načinu distribucije:
  - Licencirani – kupuje se pravo na korištenje (nisi vlasnik programa)
  - Nelicencirani – prodaje se ili dijeli program (a naplaćuje usluga; npr. održavanje)
  - Testni/pokazni – dio licenciranog programa za dijeljenje i širenje (Shareware, demo)



# Programska podrška

- Podjela prema razvojnoj fazi programa:
  - Alfa - prva iskoristiva inačica programa
  - Beta - daje se odabranom krugu korisnika tzv. (beta-ispitivačima) da isprobaju ponašanje programa i daju primjedbe
  - RC (Release Candidate) – inačica s izlednim šansama da postane završna inačica
  - Final – konačna inačica službeno predstavljena korisnicima





# Programska podrška

- Podjela s obzirem na otvorenost koda:
  - Zatvoreni kod
    - Korisnik ne može vidjeti ni mijenjati
  - Otvoreni kod
    - Kod vidljiv korisniku (ali ga možda nema pravo mijenjati)
  - Slobodan kod
    - Kod vidljiv korisniku i dostupan za mijenjanje

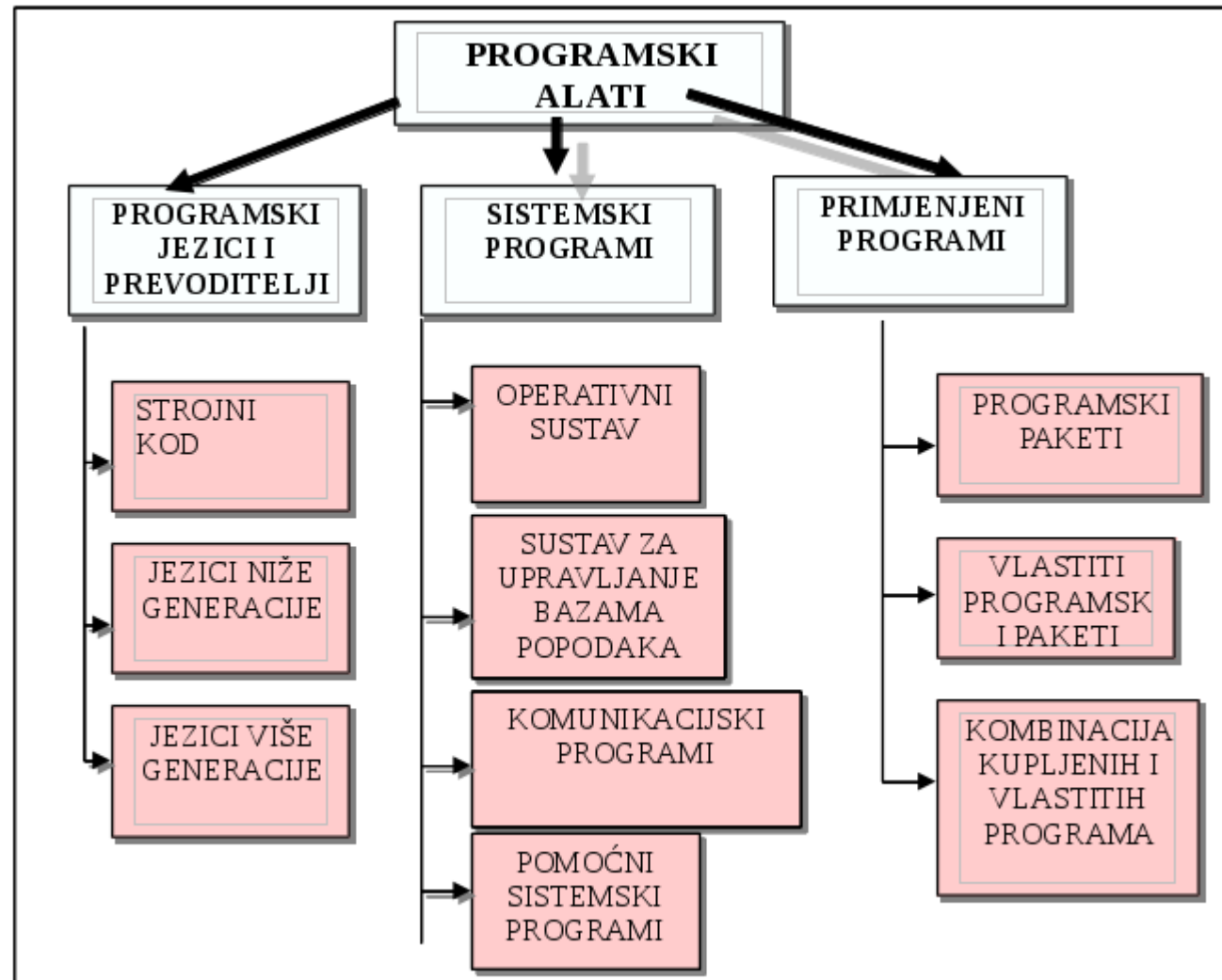


# Programska podrška

- Podjela s obzirom na pravni status:
  - Legalan programski paket
    - Može biti otvoren ili čak slobodan
    - Ne mora biti licenciran ili zaštićen
  - Piratski programski paket
    - Povrjeđuje nečija prava
    - Često sadrži viruse ili backdoor



# Programska podrška



# Programska podrška

- Programiranje
- Kako navesti računalu da radi ono što ja želim?
- Kako prevesti zamišljeni proces na jezik stroja?



# Programska podrška

- Prevoditelji (kompajleri) su programi koji prevode programski jezik lako razumljiv čovjeku u jezik razumljiv računalu.
- Prema njihovoj složenosti, odnosno razumljivosti za čovjeka, razlikujemo:
  - strojni jezik (Machine language),
  - assembler (Assembler Language), te
  - jezike više razine
    - treće generacije: FORTRAN; BASIC; PASCAL; C, JAVA,.. (3GL)
    - četvrte generacije: Python, Ruby, Perl, SQL... (4GL)
    - Različiti ekspertni sustavi

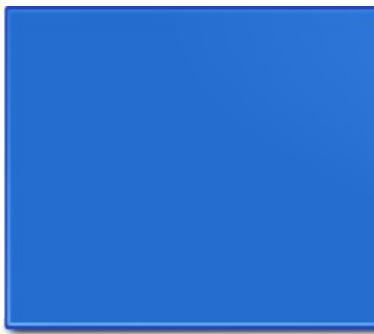


# Programska podrška

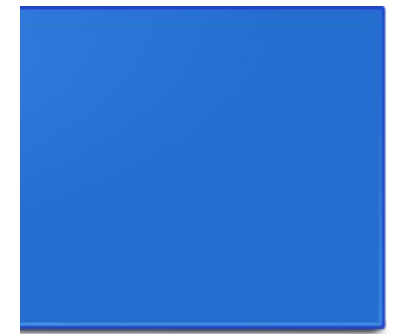
- Strojni jezik
  - skup instrukcija napisanih u formi da ih računalo može izvoditi. sastoji se od naredbi koje sadrže dva osnovna dijela
    - broj koda operacije koja će se izvršiti,
    - broj operanda, odnosno brojeva koji određuju adrese računalnih lokacija, adresa registara ili pojedinačnih ulaznih i izlaznih uređaja.
  - Programiranje u strojnom jeziku je vrlo složeno i teško



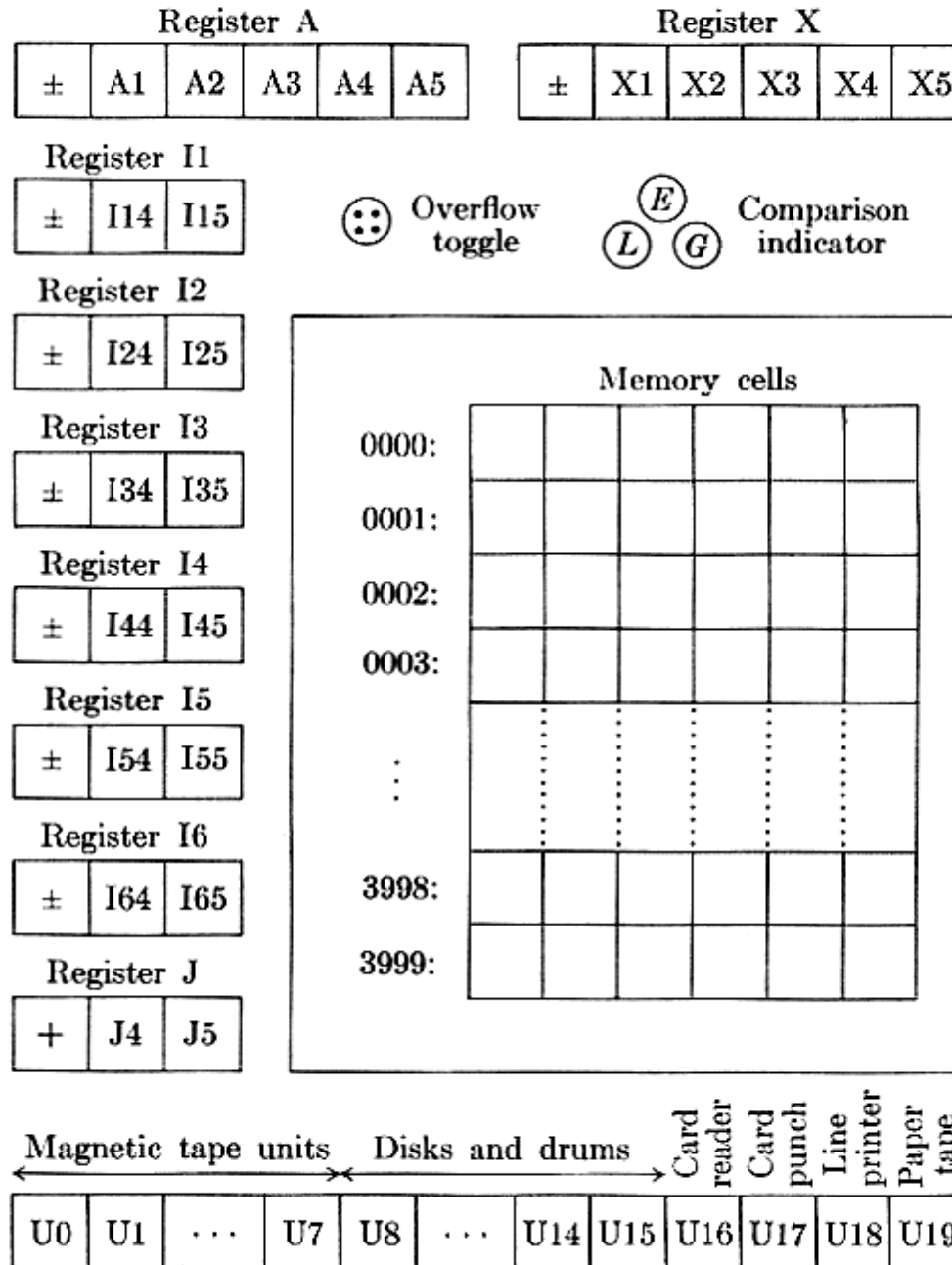




# MIX



- Strojni
  - skup može osno
  - bro
  - bro rač
  - ula
- Progl tešk



čunalo  
adrže dva

adrese  
račnih

ženo i



Fig. 13. The MIX computer.

# Programska podrška

- Asemblerski jezik
  - izumljen da bi se olakšalo programiranje
  - operacijski kodovi izraženi kombinacijom slova u simboličkom obliku
  - stroj ne razumije ovaj jezik
  - prevodi u strojni pomoću posebnog prevoditelja – asemblera
  - Složeno programiranje



# Programska podrška

- Jezici više razine
  - Nastali zbog potrebe da korisnici ne trebaju poznavati strojevinu
  - Omogućuje programiranje širokom krugu korisnika
  - Prilagođeni ljudskom jeziku
  - Programe napisane u višim jezicima u strojni jezik prevode posebni prevoditelji (Compileri)



# Programska podrška

- Programiranje
- Kako navesti računalu da radi ono što ja želim?
- Kako prevesti zamišljeni proces na jezik stroja?

<http://scratch.mit.edu/projects/10128431/>



# Programska podrška

The screenshot displays the Scratch programming environment with a project titled "Maze Test" by user "EvilIceCream". The main stage shows a maze with a red ball starting at the top left and a green goal at the bottom right. The interface includes a menu bar (File, Edit, Tips, About), a toolbar, and a sidebar with categories like Motion, Looks, Sound, Pen, and Data. The Scripts area is open, showing various event and control blocks. The Sprites area shows a "Ball" sprite and a "Start" button. The main workspace contains several scripts for the maze game.

**Scripts:**

- when clicked:** hide variable position x, hide variable position y, hide.
- when I receive back2:** set position x to -205, set position y to 147.
- when this sprite clicked:** repeat until touching color (blue)?: go to mouse-pointer, go to x: position x, y: position y.
- when right arrow key pressed:** point in direction 90, move 10 steps, if touching color (blue)?: then wait 0.1 secs, move -10 steps, go to x: position x, y: position y.
- when up arrow key pressed:** point in direction 0, move 10 steps, if touching color (blue)?: then wait 0.1 secs, move -10 steps, go to x: position x, y: position y.
- when down arrow key pressed:** point in direction 180, move 10 steps, if touching color (blue)?: then wait 0.1 secs, move -10 steps, go to x: position x, y: position y.
- when left arrow key pressed:** point in direction -90, move 10 steps, if touching color (blue)?: then wait 0.1 secs, move -10 steps, go to x: position x, y: position y.
- when I receive back2:** forever loop: go to x: position x, y: position y, show, wait until touching Goal?, hide, wait 2 secs.
- when I receive back3:** set position x to 214, set position y to -152.
- when I receive back2:** broadcast back2, broadcast back2 and wait.

**Sprites:** Ball, Goal, Start, Sprite1.

**Stage:** 3 backdrops.

# Programska podrška

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