

## MakeFantasy: Video Game Programming

**CS Athena Swan Outreach Team** 

Rozerin Baran

Nadine Aburumman



# MakeFantasy Workshop: Video Game Programming with MakeCode Arcade

# The MakeFantasy Workshop is a Hands-On Experience

## The objectives:



An opportunity for all of you to gain knowledge of computer science.



An introduction to fundamental concepts and applications of computer science.



# The MakeFantasy Workshop is a Hands-On Experience

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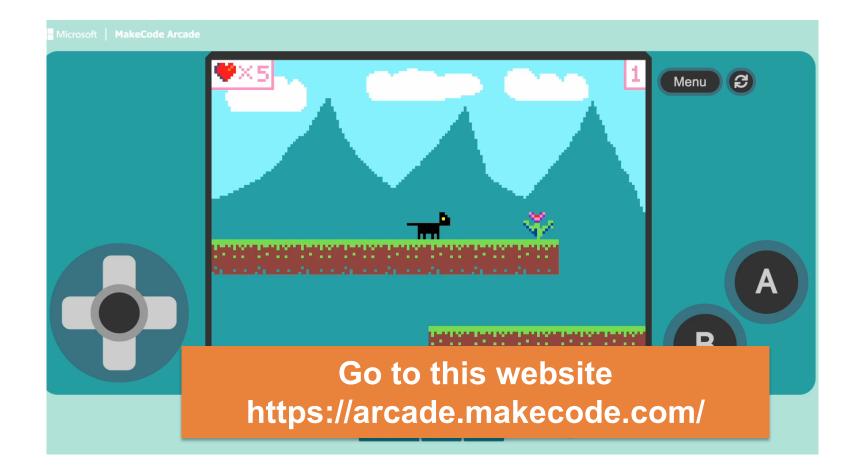


Run a range of activities that focus on creating an arcade game.



Having fun with coding while also learning.







## **Software**

#### Microsoft MakeCode

an online learn-to-code platform

https://arcade.makecode.com/



















## Sequencing concept



A sequence simply specifies the order of the tasks.



A programmer tells a computer which tasks to perform first, which to perform second, and so on, so that every requirement falls into place in its proper sequence.

## **Activity 1: Make Your Avatar**

```
on start

set background color to

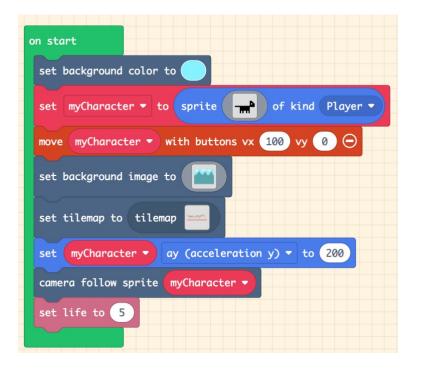
set myCharacter → to sprite  of kind Player →

move myCharacter → with buttons vx 100 vy 0 ⊖
```

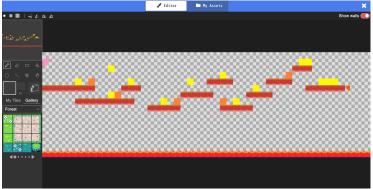




## **Activity 2: Make Your Background**







## **Activity 3: Create Starting Point**

```
on start
       set background color to
          set myCharacter ▼ to sprite mi
                                                                                                                                                                                                                                   of kind Player •
         move myCharacter ▼ with buttons vx 100 vy 0 ⊝
       set background image to
       set tilemap to tilemap
       set myCharacter ▼ ay (acceleration y) ▼ to 200
       camera follow sprite myCharacter ▼
       set life to 5
       place myCharacter ▼ on top of random
       for element value of array of all
                                                                                                                                                                                                                                                                ▼ locations
                                                                    ■ value val
```



## Selection Concept



Selection statements (also known as conditional statements) are pieces of code that are only completed if certain conditions are met.



These are often referred to as "IF-THEN" statements.

## **Activity 4: Make Your Avatar Jump**

```
on A → button pressed →

if myCharacter → vy (velocity y) → = → 0 then

set myCharacter → vy (velocity y) → to -150

⊕
```



## **Activity 5: Game Over / You Won!**







## **Looping Concept**



A loop is something that repeats again and again until it is told to stop.

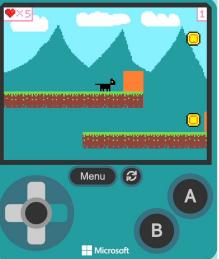


Programmer specifies several processing steps and instructs the computer to carry out the loop as many times as they need.

#### **Activity 6: Create Rewards**

```
on start
 set background color to
 set myCharacter ▼ to sprite →
                                  of kind Player •
 move myCharacter ▼ with buttons vx 100 vy 0 ⊝
 set background image to
 set tilemap to tilemap
 set myCharacter ▼ ay (acceleration y) ▼ to 200
 camera follow sprite myCharacter ▼
 set life to 5
 for element value of array of all
                                     ▼ locations
    set coin ▼ to sprite  of kind Coin ▼
    place coin ▼ on top of value ▼
```







#### on start set background color to of kind Player ▼ set myCharacter ▼ to sprite move myCharacter ▼ with buttons vx 100 vy 0 ⊝ set background image to set tilemap to tilemap set myCharacter ▼ ay (acceleration y) ▼ to 200 camera follow sprite myCharacter ▼ set life to 5 for element value of array of all place coin ▼ on top of value ▼ ▼ at value ▼ for element value of array of all set flower ▼ to sprite ( 🐉 ) of kind Flower ▼ place (flower ▼ ) on top of (value ▼

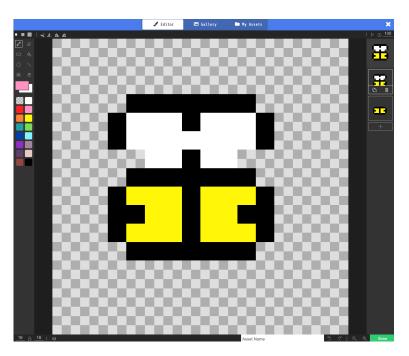
## **Activity 7: Create Challenge (Part 1)**





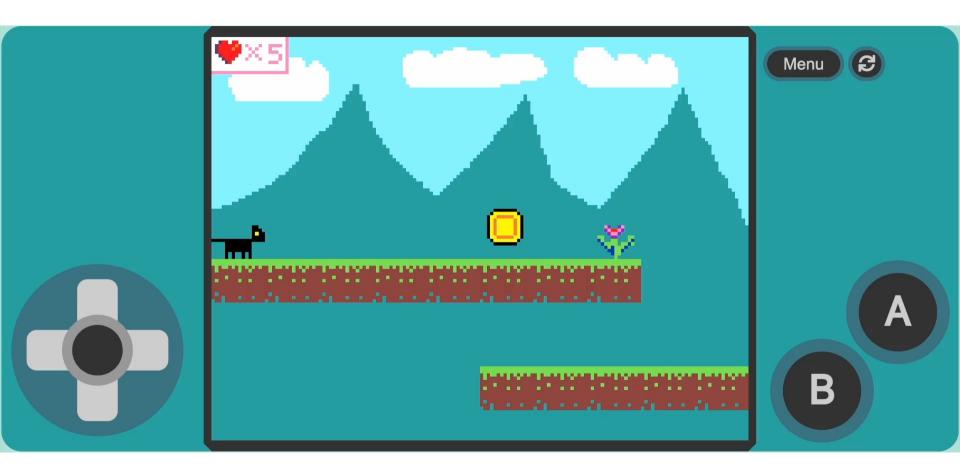
## **Activity 8: Create Challenge (Part 2)**

```
sprite of kind Player ▼ overlaps otherSprite of kind Flower ▼
destroy otherSprite
                           of kind Enemy •
frames 🖽 🔠
interval (ms) 100 ▼
    Bee ▼ follow myCharacter ▼
```



## **Activity 8: Create Challenge (Part 3)**





## **Any Questions?**