



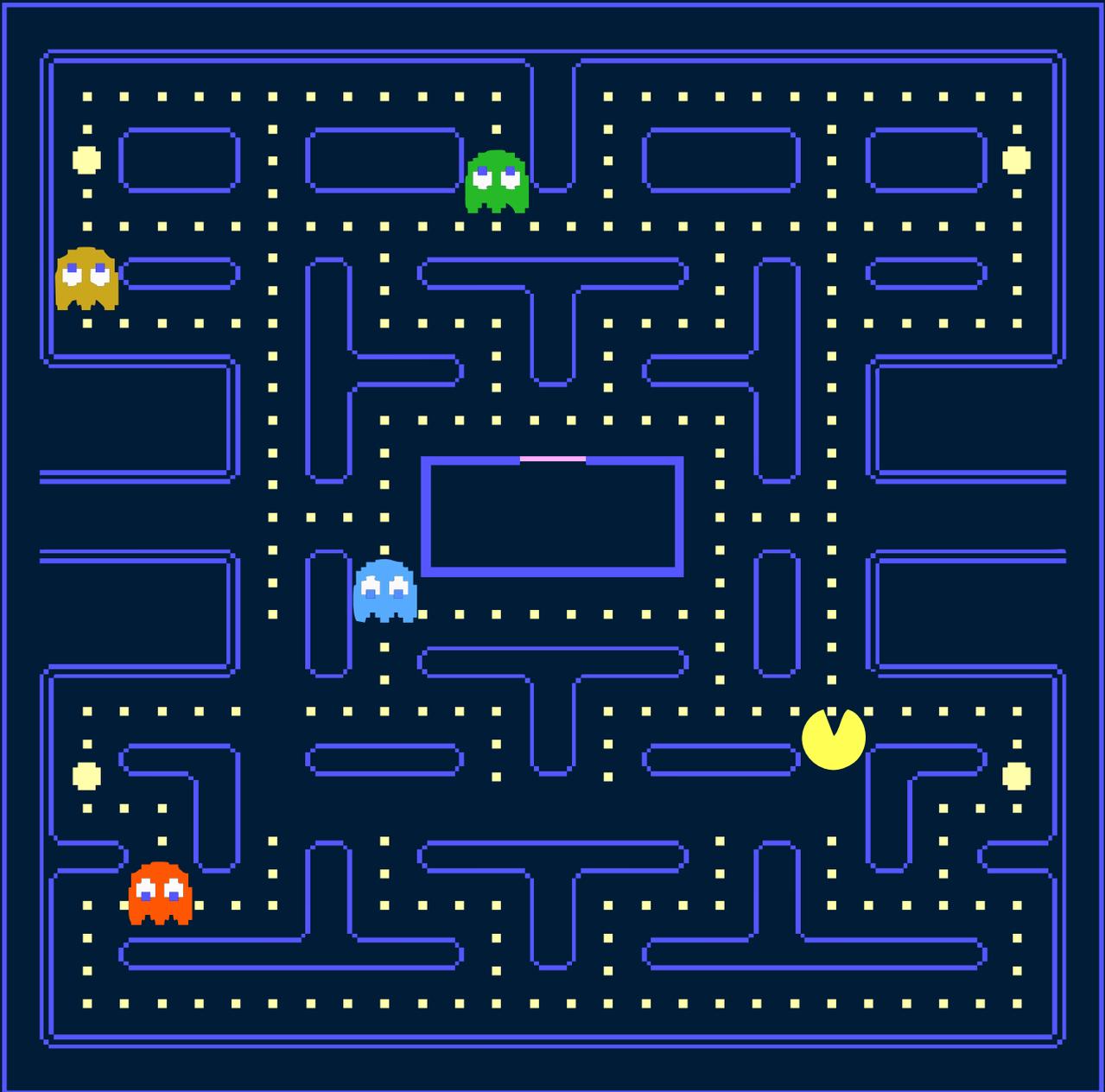
98 TH PERCENTILE

GIFTED THROUGH HARDWORK

IS YOUR KID A CONSUMER OR A CREATOR OF VIDEO GAMES?

Develop a Pacman Game with 98thPercentile

PACMAN



Intended Learning from Pacman ebook

In this ebook students will get introduction to scratch and its working, along with that it has step by step directions to create Pacman game.

Acquired skills from ebook

Back End Knowledge of Game Design

Students learn the back end working and designing of the game which makes them “Creators of games” instead of “Consumer of the game”.

Sequential Statement

Students learn how to put all the code in a logical and how sequence of a code affects the overall working of code

Conditional Statement

Students learn how to use conditional Statements extensively and put code accordingly in it

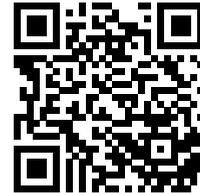
Color Combination

Students learn color combination skills through, creating the sprites and editing their own version of it, they learn how some color suits well with few other colors.

● Introduction to Scratch and Pacman

- We will be creating the game Pacman.
To check it out, follow the given link

<https://bit.ly/2NmxJ6n>



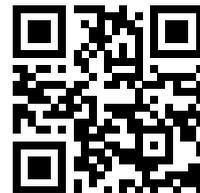
- To download the required sprites.
Kindly click on this link.

<https://bit.ly/2FMZKQn>

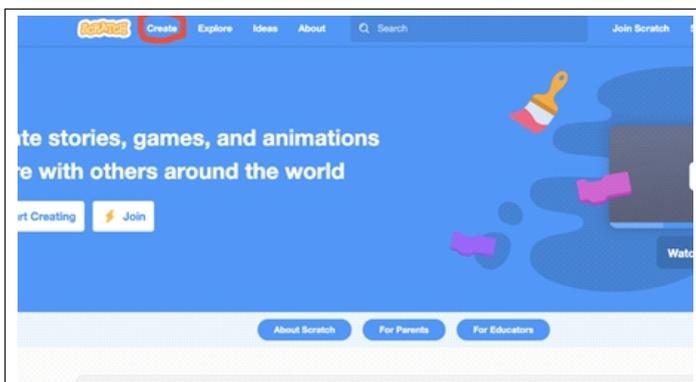


- We will be creating the game on Scratch.
Go to

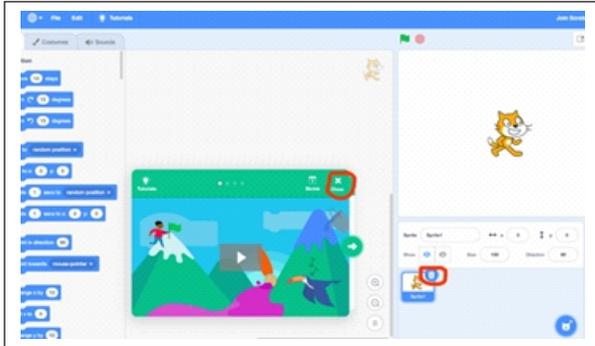
[https://scratch.mit.edu/.](https://scratch.mit.edu/)



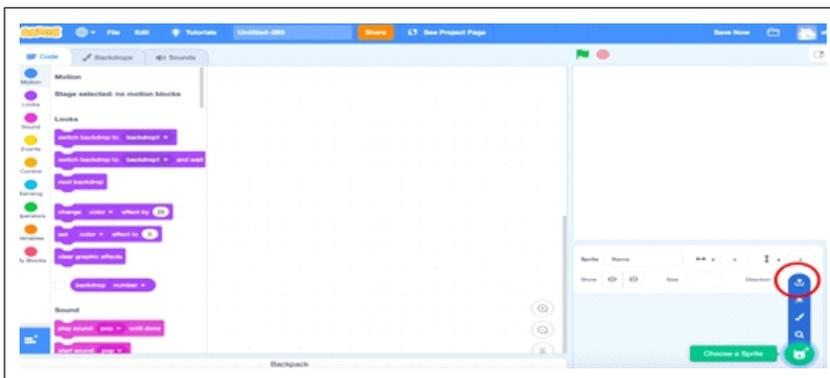
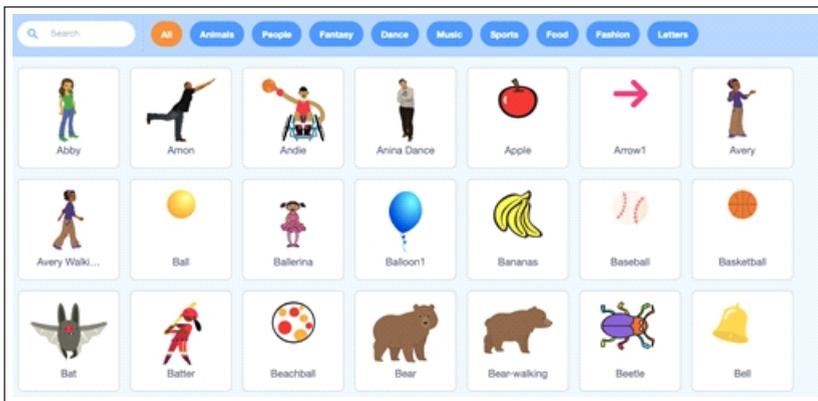
- Kindly click on Create button on top right corner.
“Create” button will open the window for for creating the game module.



- Delete the existing default Cat sprite.



- You can use downloaded sprite and backdrop and upload it in the game.
(Upload button). We can create the sprites as well, along with uploading it on the Scratch. There are lot of Different Sprites which are already present in it.



- Provide the required code in the corresponding sprite, explanation of code is along with the code.

Introduction of Major Code Blocks in Scratch is given to help you.



This will start our game running. when the green flag is clicked all connected blocks will be run in order



This creates a loop. Code inside is run over and over until the game is quit



This is an if block. It checks whether something is true and if so, the code inside it is run



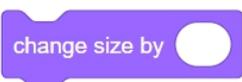
These blocks allow us to change the value of a variable with the name deaths



This block goes inside an if block and allows us to check if the player has touched an enemy



This block goes inside an if block and allows us to check whether a key has been pressed



This block allows us to move our character right or left

Code for Pacman

The goal for writing successful code in Scratch is that, we should put the code in the sprite for which we want the action to happen.

For example, If we want Pacman to move in right direction we should put the code in the Pacman Sprite.

Block - 1

Summary of Code Block

The image shows a Scratch code block with the following steps and handwritten annotations:

- when clicked**: Triggered Event to start code.
- erase all**: Erase everything written by pen.
- hide**: Used to hide Pacman.
- switch backdrop to PacmanTitleFirstPage**: Used to switch Backdrop to Pacman First
- start sound pacman_song1**: Used to start sound of Pacman Song.
- forever**: Forever Loop used to run code again.
- if key space pressed? then**: If the given Condition Satisfies only then the next code works.
- switch backdrop to PacmanGameBackdrop**: Used to change sound and Backdrop.
- stop all sounds**: (Annotation points to this block)
- play sound pacman_song2 until done**: (Annotation points to this block)

This particular code block deals with the change of Backdrop of the game. We have an introductory backdrop which we call as "PacmanTitleFirstPage", we want this page whenever the game starts and when the user press "space" key it should change to "PacmanGameBackdrop". Along with that we also want to make sure that "erase all" block should erase all the stuff written by the previous user moreover this code block also changes the sound according to the requirement.

● Block - 2

● Summary of Code Block

The image shows a Scratch code block for Pacman movement. The code starts with a 'when clicked' event, followed by a 'forever' loop. Inside the loop, there is an 'if' condition: 'color red is touching black?' or 'color red is touching yellow?'. If true, it executes 'move 3 steps'. Below this, there are three 'if' conditions for keyboard keys: 'key right arrow pressed?', 'key up arrow pressed?', and 'key left arrow pressed?'. Each key condition is followed by a 'point in direction' block (90, 0, and -90 respectively). A fourth 'if' condition for 'key down arrow pressed?' is followed by 'point in direction 180'. Handwritten annotations in red and green explain each part of the code.

Trigger Event to start Code
 Forever loop to run again
 Pacman moves only if it touches Fruit and Background.
 Move 3 steps
 If right arrow key is pressed
 Then Pacman should move right Direction
 Similarly, if left arrow key is pressed, the Pacman should move in left Direction.

This particular code block provides Movement code for Pacman, we are moving Pacman constantly in this game, along with that we are also providing appropriate directions to Pacman whenever corresponding key from keyboard is pressed. The most important attribute of the code is the condition that Pacman should only move when the dot color in front of Pacman is touching either the background color or color of fruit.

This ensures that when Pacman faces the wall/maze of game it stops. (It is suggested to use color picker to fill in the correct color).

● Block - 3

● Summary of Code Block

The image shows a Scratch code block with the following steps and handwritten annotations:

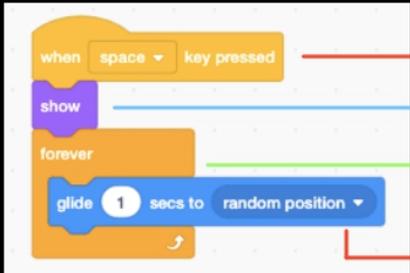
- when space key pressed** → Trigger Event/When Space key is pressed.
- go to x: -194 y: -1** → It takes Pacman to specific position.
- show** → It makes Pacman visible.
- set Score to 0** → Set score to 0.
- erase all** → Used to erase all pen work.
- set pen color to black** → Set pen color as Black.
- set pen size to 12** → Set size of pen as 12.
- forever loop** → Forever loop used to run the code again and again.
- if touching color yellow then** → If Pacman touches yellow fruit, it should paint it by black color.
- pen down** → (part of the if-then block)
- play sound pacman_coinin until done** → (part of the if-then block)
- change Score by 100** → (part of the if-then block)

This code block ensures, the initial required setting for Pacman, for example the starting location of Pacman, its visibility, ability of pen, initializing the “score” variable as 0. Along with that it also makes sure, that when Pacman touches yellow fruit then it draws “Black” color on top of that, giving us an illusion along with sound that actually fruit is eaten by Pacman.

Code Block in Enemy Sprites

After entering every block, keep checking its working, to make sure its working correctly.

- Block - 1
- Summary of Code Block



The image shows a Scratch code block with three main sections: a yellow 'when space key pressed' block, a purple 'show' block, and an orange 'forever' loop containing a blue 'glide 1 secs to random position' block. Handwritten annotations in red, blue, and green ink are on the right, with arrows pointing to the corresponding code blocks. The red text says 'When Space key is Pressed.', the blue text says 'Make sure enemy is visible.', the green text says 'In forever loop', and the red text at the bottom says 'Enemy should glide to Random Position.'

This code ensures that when "Space" key is pressed, make sure Enemy is visible, using "show" code block. Along with that "Enemy" is moving randomly, in the maze. Make sure that you put the same code in all the enemy sprites.

Block - 2

Summary of Code Block



The image shows a Scratch code block for an enemy ghost. The code consists of the following blocks: a 'when green flag is clicked' block, a 'hide' block, a 'go to x: -24 y: -9' block, a 'forever' loop containing an 'if touching Pacman?' block. Inside the 'if' block, there are three sub-blocks: 'play sound pacman_death until done', and 'broadcast Pacman Got Eaten by Ghost'. Handwritten annotations in various colors point to each block with the following descriptions: 'When green flag is clicked.', 'Enemy Hides.', 'Places Enemy at specific location.', 'If Enemy touches Pacman.', 'Play appropriate Sound.', and 'Broadcast a message to all sprites.'

We put this code in enemy which ensures, that enemy starts from a specific location in the maze and hides, if enemy touches pacman, play sound that enemy dies and also broadcast the message that pacman is eaten. When Pacman receive the message it changes its color and stop all the sprites.

Congratulations!!!

You have become a creator of Pacman Game!!

Don't forget to check out our program at :-
<https://www.98thpercentile.com/>