intro to pygame

How use?

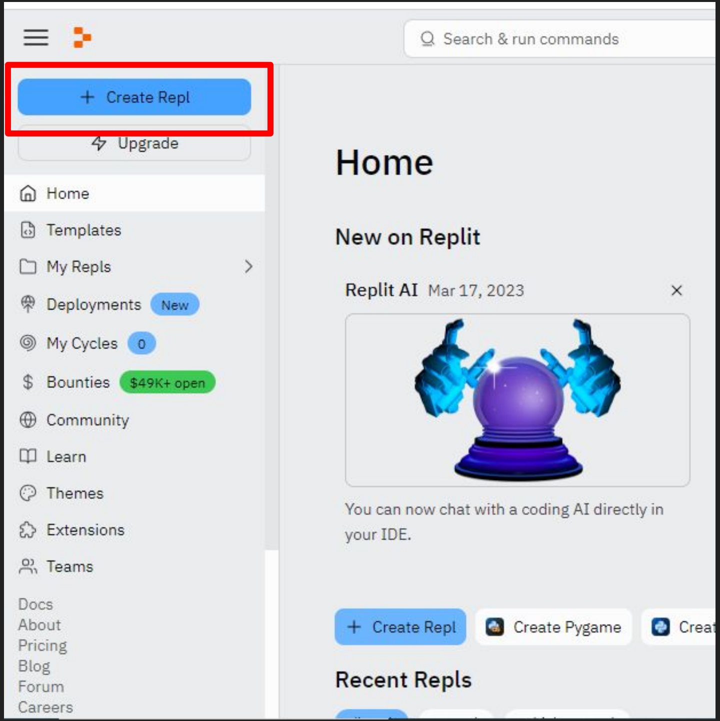
what pygame can do

- Acts as a game engine
- Automate the boring stuff
  - Create your game’s window
  - Graphics
  - Tickrate

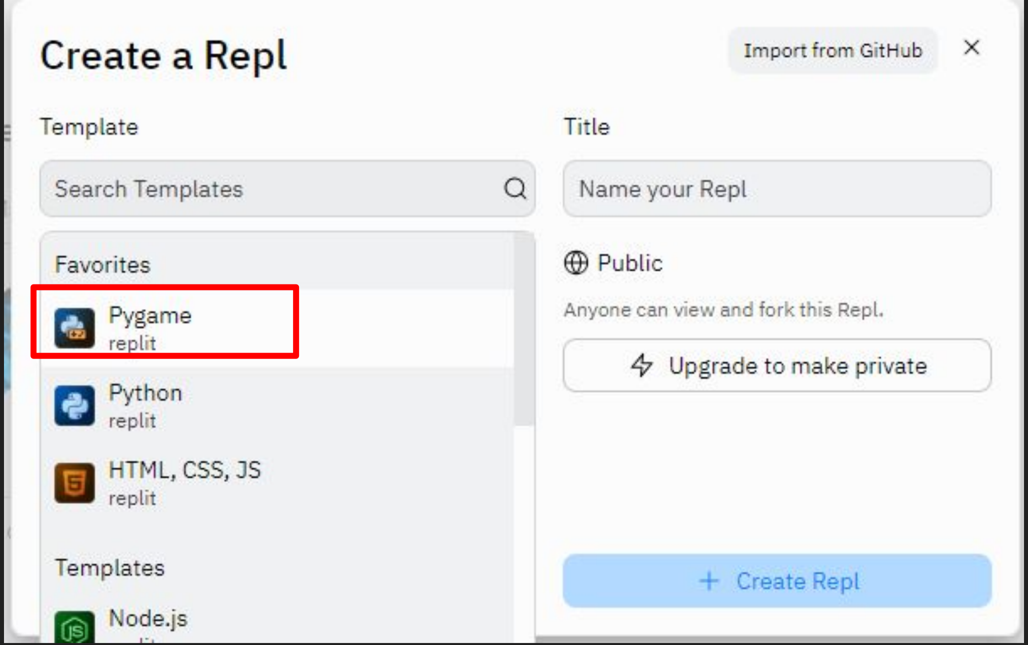
let’s get to coding

create your project in repl.it

Create a new python project in `repl.it`.



You can now chat with a coding AI directly in your IDE.

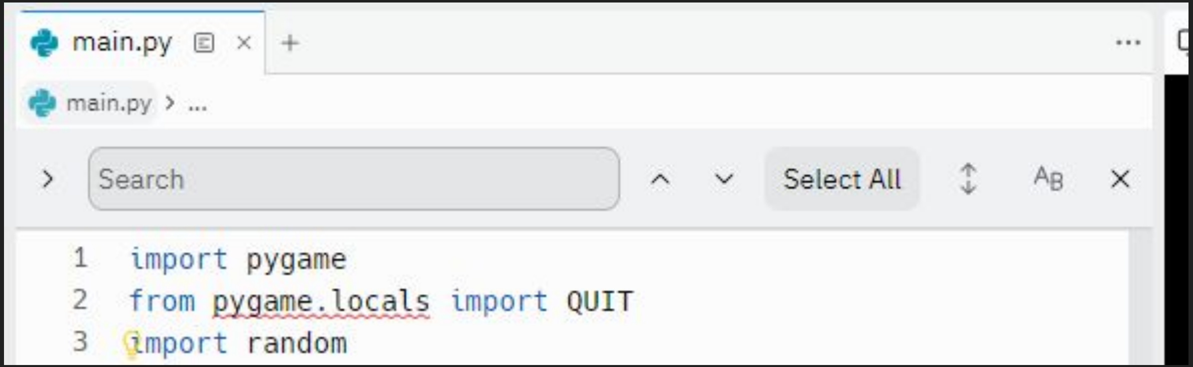


Anyone can view and fork this Repl.

installation

Type `import pygame` and run it.

Pygame should install automatically for you. (On other environments, you may need to install it using pip.)



```
import pygame
from pygame.locals import QUIT
import random
```

pygame initialization

```python
import pygame

pygame.init()
pygame.display.set_caption("Some Title Goes Here")
canvas = pygame.display.set_mode((1200, 800))


def main():
    pass  # We’ll put future code here...


main()
```

pygame initialization

Add a main loop to the main() function:

```
def main():
    while True:
        for event in pygame.event.get():
            if event.type = = pygame.QUIT:
                pygame.quit()
                exit()
        pygame.display.update()
```

done starting!

Run it!

But it’s just a black screen for now…

more features....?

Let’s get into it!

0001. printing text on screen

Add inside the main function but before your loop:

```
def main():
    my_font = pygame.font.SysFont('Calibri', 20)
    rendered_text = my_font.render('This is some text', True, (0, 0, 255))
    canvas.blit(rendered_text, (200, 200))


    while True:
```

This draws “`This is some text`” in blue `(0, 0, 255)` with the top-left corner of the box at `(200, 200)`.

0010. drawing rectangles

Add this after the previous code but before the loop:

```
canvas.blit(rendered_text, (200, 200))

pygame.draw.rect(canvas, (255, 255, 255), (300, 300, 50, 50))

while True:
```

This draws a solid white rectangle with top-left corner at 300, 300 with a *size* of 50 by 50.

0011. drawing arbitrary shapes

```
pygame.draw.rect(canvas, (255, 255, 255), (300, 300, 50, 50))

points = [(400, 400), (400, 500), (500, 500), (500, 400), (450,
330), (400, 400)]
pygame.draw.aalines(canvas, (0, 255, 0), True, points)

while True:
```

0011. drawing arbitrary shapes

- `aalines` stands for antialiased lines (basically drawing it prettier)
- If drawing a closed shape, put the first point a second time at the end
- Can also use `pygame.draw.lines(..., width=...)` to draw lines with a thicker width, but they might not look as good since there is no antialiasing

0100. detecting mouse clicks

```
while True:
    for event in pygame.event.get():
        if event.type = = pygame.QUIT:
            pygame.quit()
            exit()
        if event.type = = pygame.MOUSEBUTTONDOWN:
            canvas.fill((0, 0, 0))
            rendered_text = my_font.render('You clicked at 
'+str(event.pos), True, (0, 255, 0))
            canvas.blit(rendered_text, (300, 300))
    pygame.display.update()
```

0100. detecting mouse clicks

- Check for new events (using `pygame.event.get`)
- Mouse button press is an event (`pygame.MOUSEBUTTONDOWN`)
    - To check left/right click, can use `event.button` (left is 1, middle is 2, right is 3)
    - To get the position of the click, can use `event.pos`
- Then we clear the canvas - `canvas.fill((0, 0, 0))` fills it all black
- And finally redraw our text

0101. time

First, let’s move our old code into the loop so it doesn’t get deleted every click:

```
def main():
    my_font = pygame.font.SysFont('Calibri', 20)
    Cut out the code right here
    while True:
        for event in pygame.event.get():
            ...
        And put it right here after the for loop for the events
        rendered_text = my_font.render('This is some text', True, (0, 0, 255))
        canvas.blit(rendered_text, (200, 200))
        pygame.draw.rect(canvas, (255, 255, 255), (300, 300, 50, 50))
        points = [(400, 400), (400, 500), (500, 500), (500, 400), (450, 330), (400, 400)]
        pygame.draw.aalines(canvas, (0, 255, 0), True, points)
        pygame.display.update()
```

0101. time

Now add these 2 lines so our game runs at 30 FPS for now:

```
def main():
    my_font = pygame.font.SysFont('Calibri', 20)
    clock = pygame.time.Clock()

    while True:
        clock.tick(30)
        for event in pygame.event.get():
```

and that’s it!

These are basically all the most important parts of pygame!

(You can make games like HexaMine)

questions?

Get coding!