# 准备工作：把08文件复制一份，改名09-dad-son-planewar.py

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# 目标：实现我方补给，在游戏的过程中我们打掉了敌机，会加分，而且会有闪电和盾牌出现，我方捡到闪电会增加火力，捡到盾牌会增加血量

# 开发开始

## 1.我们在funcs模块中子弹打中敌人的函数里面添加产生补给的代码，需要一个Power类，还需要在constants模块里面新建一个powers精灵组，我们稍后新建一个power.py模块在里面定义这个类和定义这个精灵组

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## 2.在constants模块里面定义一个powers精灵组，用来添加补给精灵

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## 3.新建一个power模块，在里面新建一个Power类

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| import pygame as pg  from constants import \*  import random as rnd  # 加载盾牌和闪电  powerup\_images = {}  powerup\_images['shield'] = pg.image.load(pic\_path+'shield.png')  powerup\_images['gun'] = pg.image.load(pic\_path+'bolt.png')    class Power(pg.sprite.Sprite):      def \_\_init\_\_(self, center) -> None:          pg.sprite.Sprite.\_\_init\_\_(self)          self.type = rnd.choice(['shield','gun'])          self.image = powerup\_images[self.type]          self.image.set\_colorkey(BLACK)          self.rect = self.image.get\_rect()          self.rect.center = center          self.speedy = 4      def update(self):          self.rect.y += self.speedy          if self.rect.top > HEIGHT:              self.kill() |

## 4.另外，我们需要在constants模块里面添加一个players精灵组，用来保存玩家

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## 5.然后我们需要在游戏主程序的创建玩家的地方把玩家添加到玩家精灵组

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## 6.在funcs模块里面定义一个玩家精灵和power精灵的碰撞检测的方法plane\_get\_power

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## 7.然后需要在主文件的游戏循环里面调用我方飞机获取补给的函数

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## 8.为了效果更好，我们给获取补给函数添加音效

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# 这一节学习到此为止，有更新的模块的代码如下

## funcs.py

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| import pygame as pg  from constants import \*  from plane import \*  from enemy import \*  from explosion import \*  import random as rnd  from power import \*  #绘制文本的函数  def draw\_text(surf,text,size,x,y):      font = pg.font.Font(font\_name,size)      text\_surface = font.render(text,True,WHITE)      text\_rect = text\_surface.get\_rect()      text\_rect.midtop = (x,y)      surf.blit(text\_surface,text\_rect)  def draw\_screen\_text(screen,player1,player2):      draw\_text(screen,str(score),18,WIDTH/2,10) #显示分数      draw\_shield\_bar(screen,5,5,player1.shield)      draw\_shield\_bar(screen,WIDTH-105,5,player2.shield)      draw\_lives(screen,10,20,player1.lives,player\_mini\_img1)      draw\_lives(screen,WIDTH-100,20,player2.lives,player\_mini\_img2)  # 绘制血条  def draw\_shield\_bar(screen,x,y,pct):      pct = max(pct,0)      fill = (pct/100) \* BAR\_LENGTH      outline\_rect = pg.Rect(x,y,BAR\_LENGTH,BAR\_HEIGHT)      fill\_rect = pg.Rect(x,y,fill,BAR\_HEIGHT)      pg.draw.rect(screen,GREEN,fill\_rect)      pg.draw.rect(screen,WHITE,outline\_rect,2)  def draw\_lives(surf,x,y,lives,img):      for i in range(lives):          img\_rect = img.get\_rect()          img\_rect.x = x + 30\*i          img\_rect.y = y          surf.blit(img,img\_rect)  # 创建敌机的函数  def new\_enemy():      enemy = Enemy()      all\_sprites.add(enemy)      enemies.add(enemy)  def bullet\_hit\_enemy():      """我方子弹打中敌人的函数"""      # 先进行我方子弹和敌机的碰撞检测      global score      hits = pg.sprite.groupcollide(enemies,bullets,True,True)      for hit in hits:          score += 50-hit.radius          pg.mixer.Sound(sound\_path+"exp.wav").play()          #创建一个爆炸对象需要调用Explosion类          expl = Explosion(hit.rect.center,'lg')          # 将爆炸对象添加到所有精灵组          all\_sprites.add(expl)          if rnd.random()> 0.9:              pow = Power(hit.rect.center)              all\_sprites.add(pow)              powers.add(pow)          # 每消灭一个敌机，又会创建一个敌机          new\_enemy()  # 我方飞机获取补给的方法，元素碰撞检测  def plane\_get\_power():      sound = pg.mixer.Sound(sound\_path+'FX054\_cut.wav')      for player in players:          hits = pg.sprite.spritecollide(player,powers,True)          for hit in hits:              if hit.type == 'shield':                  sound.play()                  player.shield += rnd.randrange(20,40)                  if player.shield >=100:                      player.shield = 100 # 血量不能超过100              elif hit.type == 'gun':                  sound.play()                  player.powerup() |

## power.py

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| import pygame as pg  from constants import \*  import random as rnd  # 加载盾牌和闪电  powerup\_images = {}  powerup\_images['shield'] = pg.image.load(pic\_path+'shield.png')  powerup\_images['gun'] = pg.image.load(pic\_path+'bolt2.png')    class Power(pg.sprite.Sprite):      def \_\_init\_\_(self, center) -> None:          pg.sprite.Sprite.\_\_init\_\_(self)          self.type = rnd.choice(['shield','gun'])          self.image = powerup\_images[self.type]          self.image.set\_colorkey(BLACK)          self.rect = self.image.get\_rect()          self.rect.center = center          self.speedy = 2      def update(self):          self.rect.y += self.speedy          if self.rect.top > HEIGHT:              self.kill() |

## constants.py

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| import pygame as pg  from os import path  pg.init()       #初始化pygame模块  pg.mixer.init() #初始化pygame模块的音效模块  font\_name = pg.font.match\_font('arial') # 获取系统里面安装了的字体名称  # 实战图片和音效图片路径  pic\_path = './res/images/'  sound\_path = './res/sounds/'  WIDTH = 480      #窗口宽度  HEIGHT = 600     #窗口高度  SIZE = (WIDTH,HEIGHT) #  FPS = 30   # 帧率  # 定义颜色  BLACK = (0,0,0)  WHITE = (255,255,255)  RED = (255,0,0)  GREEN = (0,255,0)  BLUE = (0,0,255)  YELLOW = (255,255,0)  bg = pg.image.load(pic\_path+'startfield.jpg')  bg = pg.transform.scale(bg,(WIDTH,1536))  height = -936  POWERUP\_TIME = 5000  #飞机的火力持续时间  # 所有精灵的精灵组  all\_sprites = pg.sprite.Group()  # 我方子弹精灵组  bullets = pg.sprite.Group()  # 敌机精灵组  enemies = pg.sprite.Group()  # 敌人子弹精灵组  enemy\_bullets = pg.sprite.Group()  # 补给精灵组  powers = pg.sprite.Group()  # 玩家精灵组  players = pg.sprite.Group()  # 分数  score = 0  BAR\_LENGTH =100  #血条长度  BAR\_HEIGHT = 10  #血条高度 |

## 09-dad-son-planewar.py

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| # 第8个版本，敌机攻击  import sys  from constants import \*  import menu  from plane import \*  from funcs import \*  screen = pg.display.set\_mode(SIZE)  pg.display.set\_caption("飞机大战")  clock = pg.time.Clock()  def main():      # 1.显示启动画面      menu.menu\_display(screen) # 调用menu模块的显示菜单方法      # 2.精灵组可以直接使用constants模块里面的all\_sprites和bullets      # 3.创建玩家飞机      player1 = Plane(player\_img1,pg.K\_LEFT,pg.K\_RIGHT,pg.K\_UP,pg.K\_DOWN)      player2 = Plane(player\_img2,pg.K\_a,pg.K\_d,pg.K\_w,pg.K\_s)      # 4.将他们添加到精灵组,这是必须的，因为只有精灵组才有绘制方法      all\_sprites.add(player1)      all\_sprites.add(player2)      players.add(player1)      players.add(player2)        # 创建敌机      for i in range(4):          new\_enemy() # 这个方法可以创建敌机并且添加到all\_sprites和enemies精灵组里面      # 调用精灵组的更新方法      all\_sprites.update()      players.update()      global height      running = True      while running: # 游戏主循环            clock.tick(FPS)          for event in pg.event.get():              if event.type == pg.QUIT:                  running = False          # 背景图片向下滚动          screen.blit(bg,(0,height))          height += 2          if height > -168:              height = -936          all\_sprites.update()       # 调用精灵组的更新方法          players.update()           # 调用精灵组的更新方法          all\_sprites.draw(screen)   # 绘制精灵          bullet\_hit\_enemy() # 子弹打中敌人的碰撞检测          plane\_get\_power() #我方飞机获取补给的碰撞检测          draw\_screen\_text(screen,player1,player2) # 绘制血条和飞机架数            pg.display.update()        pg.quit()      sys.exit()  if \_\_name\_\_ == '\_\_main\_\_':      main() |