

MANAV RACHNA INTERNATIONAL SCHOOL, NOIDA

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MANAV RACHNA INTERNATIONAL SCHOOL NOIDA



Project Report On





Monster Strike

FOR

CBSE 2020 Examination

{As a part of Computer Science (New) Course-083}

Submitted By:-

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XII – Newton

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Under The Guidance Of

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Certificate

This is to certify that	the Project/Dissertation entitled			
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ando	of class XII Session 2019-20 in			
partial fulfillment of CBS	SE's AISSCE Examination 2020			
and has been carried out	under my direct supervision and			
guidance. This report or a	similar report on the topic has not			
been submitted for any oth	ner examination and does not form			
a part of any other course undergone by the candidate.				
_				
Signature of Students Garg	Ms. Rakhi			
Oag	Faculty			

Acknowledgement

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Introduction

This project aims at remaking an 1980's game named 'Alien Invasion'. In today's world people are forget how cool or soothing games were before.

Nowadays games are basically made in order to make more money by making an in game store or adding DLC's to the game and to play them you buy them. Which sometimes leads people in pirating a game in order to play it.

Objective And Scope Of The Project

Our game will indulge elderly people and help them relive their childhood memories.

Youngsters will also be attracted to this game to experience how the world of games started.

Problem Definition And Analysis

Elderly people are finding less and less things to do in their time. So basically this game is gonna give them something to do in their free time.

System Implementation

System Requirements

➤ Main Processor: i7-8750H or above

≻ Hard Disk: 250 GB or greater

≻RAM: 8 GB RAM or greater

➤ Operating System: Windows (10 Home / Professional)

≻Language: Python

Salient Features

- ➤ You can compare your score with all-time top 10 players on EARTH.
- ➤ You can save your game score.
- ➤ You can pause the game
- There is audio in the game

Code Of Project

Main File(Window.py)

```
import sys
import pygame
from pygame.sprite import Group
from settings import Settings
from ship import Ship
import game func as gf
from game stats import GameStats
from button import Button
from score import Score
def run game():
   #Initialize pygame
   pygame.init()
    #Loading a music file
   pygame.mixer.music.load('Music/Music.mp3')
   #Volume(Decreased volume)
   pygame.mixer.music.set volume(0.70)
    #-1 repeats it infinite times
   pygame.mixer.music.play(-1)
    #Settings() is a defined class
    Invad set = Settings()
    #Setting up the screen
    screen = pygame.display.set mode((Invad set.width,
Invad set.height), pygame.RESIZABLE) #pygame.FULLSCREEN
    #Top window name
   pygame.display.set caption("Kevin The Cube Distroyer")
    #(Changed "start" to " Click to start")
   play b = Button(Invad set, screen, "Click to start")
   pause b = Button(Invad set,screen, "CONTINUE")
   stats = GameStats(Invad set)
   sb= Score(Invad set, screen, stats)
    ship = Ship(Invad set, screen)
   bullets = Group()
   aliens= Group()
```

```
gf.create_fleet(Invad_set, screen, ship, aliens)
   while True:
        gf.check_events(Invad_set, screen, stats, sb, play_b
, ship, aliens, bullets, pause_b)
        if stats.game_active:
            ship.update()
            bullets.update()
            gf.update_bullets(Invad_set,
screen, stats, sb, ship, aliens, bullets)

gf.update_aliens(Invad_set, stats, sb, screen, ship, aliens, bullets)
        gf.update_screen(Invad_set, screen, stats, sb, ship,
aliens, bullets, play_b)
```

run_game()

Settings File(settings.py)

```
import pygame
class Settings():
   def init (self):
        #Dimensions of screen
        self.width=1200
        self.height=700
        self.bg color=(0,0,0)
        #Space background
        self.bg image = pygame.image.load("img/BG.jpg")
        self.ship limit = 2
        self.bullet width = 5
        self.bullet height = 15
        self.bullet color= (227,207,87)
        #Drop speed of aliens
        self.fleet drop speed = 20
        #Change in speed as round increases-Multiplied
        self.speed up = 1.3
        #Change in score per kill as round increases
        self.score s= 50
        self.int change set()
        self.s active = True
        self.pau b = False
    #Starting speed(Increased space ship speed)
   def int change set(self):
        self.ship speed = 6
        self.bullet speed = 4
        self.alien speed factor = 2.5
        #Doubt
        self.fleet dir = 1
        #Points per kill in level 1
        self.alien p = 100
    #Change in speed as level changes (Spaceship, bullet speed
stays same throughout)
   def inc speed(self):
        self.alien speed factor *= self.speed up
```

```
#Points increase as level increase(Now adds by 50 per
round not multiply by 1.5)
    self.alien p = int(self.alien p + self.score s)
```

Ship File(ship.py)

```
import pygame
from pygame.sprite import Sprite
class Ship(Sprite):
   def init (self,Invad set,screen):
        super(Ship,self). init ()
        self.screen = screen
        self.Invad set = Invad set
        self.image = pygame.image.load('img/ship.bmp')
        self.rect = self.image.get rect()
        self.screen rect = screen.get rect()
        self.rect.centerx = self.screen rect.centerx
        self.rect.bottom = self.screen rect.bottom
        self.center = float(self.rect.centerx)
        self.moving right =False
        self.moving left = False
        '''self.moving up = False
        self.moving down = False'''
   def update(self):
        if self.moving_right and self.rect.right <</pre>
self.screen rect.right:
            self.center += self.Invad set.ship speed
        elif self.moving left and self.rect.left > 0:
            self.center -= self.Invad set.ship speed
        '''elif self.moving up == True:
            self.rect.centery -=1
        elif self.moving down == True:
            self.rect.centery +=1'''
        self.rect.centerx = self.center
   def blitme(self):
            self.screen.blit(self.image, self.rect)
```

Game Function File (game_func.py)

```
import sys
import pygame
from bullet import Bullet
from alien import Alien
import time
from button import Button
from settings import init
def check keydown events (event, Invad set, screen , stats, sb, play b,
ship, aliens, bullets, pause b):
   aaa=Invad set.bullet speed
   bbb=Invad set.alien speed factor
    if event.key == pygame.K RIGHT:
        #If right key is pressed ship moves right
        ship.moving right = True
   elif event.key == pygame.K_LEFT:
        #If left key is pressed ship moves left
        ship.moving left = True
   elif event.key == pygame.K_SPACE:
        #If spacebar is pressed ship shoots out a bullet
        new bullet = Bullet(Invad set, screen, ship)
       bullets.add(new bullet)
        #Sound effect
        effect = pygame.mixer.Sound('Music/GunSound.wav')
        effect.play()
   elif event.key == pygame.K ESCAPE:
        #Game is deactivated and closed after esc
        Invad_set.s_active = False
```

```
#Pygame ends after game is closed
        pygame.quit() #sys.exit()
    elif event.key == pygame.K p:
        Invad set.bullet speed=0
        Invad set.alien speed factor=0
    elif event.key==pygame.K r:
        Invad set.bullet speed=4
        Invad set.alien speed factor=2.5
        #pause e(event, Invad set, screen , stats, sb, play b,
ship, aliens, bullets, pause b)
'''def pause e(event, Invad set, screen , stats, sb, play b,
ship, aliens, bullets, pause b):
    Invad set.pau b = True
    if Invad set.pau b == True:
        pygame.mouse.set visible(True)
        pause b.draw b()
    pygame.display.flip()'''
def check keyup events(event, Invad set, screen , stats, sb, play b,
ship, aliens, bullets, pause b):
    if event.key == pygame.K RIGHT:
        ship.moving right = False
    elif event.key == pygame.K LEFT:
        ship.moving left = False
    elif event.key == pygame.K p:
        pygame.K RIGHT = False
        pygame.K LEFT = False
        pygame.K SPACE = False
    elif event.key==pygame.K r:
        pygame.K RIGHT = True
```

```
pygame.K LEFT = True
        pygame.K SPACE = True
        check events (Invad set, screen , stats, sb, play b,
ship, aliens, bullets, pause b)
def check events (Invad set, screen , stats, sb, play b, ship, aliens,
bullets, pause b):
    if Invad set.s active == True:
        '''if event.type == pygame.QUIT:
            sys.exit()'''
        for event in pygame.event.get():
            if event.type == pygame.KEYDOWN:
                 check keydown events (event, Invad set, screen
, stats, sb, play b, ship, aliens, bullets, pause b)
            elif event.type == pygame.KEYUP:
                 check keyup events (event, Invad set, screen , stats,
sb, play b, ship, aliens, bullets, pause b)
            elif event.type == pygame.MOUSEBUTTONDOWN:
                 mouse_x,mouse_y = pygame.mouse.get_pos()
                 check play b(Invad set, screen, stats, sb,
play b, ship, aliens, bullets, mouse x, mouse y)
            elif event.type == pygame.MOUSEBUTTONDOWN:
                 mouse x, mouse y = pygame.mouse.get pos()
        '''elif event.key == pygame.K_UP:
                 ship.moving up = True
        elif event.key == pygame.K DOWN:
                 ship.moving down = True'''
    else:
        pass
```

```
def check play b(Invad set, screen, stats, sb, play b, ship, aliens,
bullets, mouse x, mouse y):
    b clicked = play b.rect.collidepoint(mouse x, mouse y)
    if b clicked and stats.game active == False:
        Invad set.int change set()
        pygame.mouse.set visible(False)
        stats.reset stats()
        stats.game active = True
        sb.F score()
        sb.F high score()
        sb.level f()
        sb.prep ship()
        aliens.empty()
        bullets.empty()
        create fleet(Invad set, screen, ship, aliens)
        ship.center
    elif b clicked and stats.game active == True:
        pass
def check pause b(Invad set, screen, stats, sb, play b, ship, aliens,
bullets, mouse_x, mouse_y):
    b clicked = play b.rect.collidepoint(mouse x, mouse y)
    if b clicked and stats.game active == False:
        pygame.mouse.set visible(False)
        Invad set.pau b == False
```

```
elif b clicked and stats.game active == True:
        pass
def update screen (Invad set, screen, stats, sb, ship, aliens,
bullets,play b):
    screen.blit(Invad set.bg image,[0,0])
    for bullet in bullets.sprites():
        bullet.draw bullet()
    ship.blitme()
    aliens.draw(screen)
    sb.show score()
    if stats.game active != True:
        play b.draw b()
    pygame.display.flip()
def update bullets (Invad set, screen, stats, sb, ship, aliens,
bullets):
    bullets.update()
    for bullet in bullets.copy():
            if bullet.rect.bottom ==0:
                bullets.remove(bullet)
    check bul all coll(Invad set, screen,
stats, sb, ship, aliens, bullets)
def check bul all coll(Invad set, screen, stats,
sb, ship, aliens, bullets):
    coll= pygame.sprite.groupcollide(bullets,aliens,True,True)
```

```
for aliens in coll.values():
        stats.score += Invad set.alien p * len(aliens)
        sb.F score()
    check high s(stats, sb)
    if len(aliens) == 0:
        effect = pygame.mixer.Sound('Music/LevelUp.wav')
        effect.play()
        bullets.empty()
        Invad set.inc speed()
        stats.level +=1
        sb.level f()
        time.sleep(2)
        create fleet(Invad set, screen, ship, aliens)
def create fleet(Invad set, screen, ship, aliens):
    alien = Alien(Invad set, screen)
    number_aliens_x = get_number_alien x(Invad set,
alien.rect.width)
    number rows = get number rows(Invad set, ship.rect.height,
alien.rect.height)
    for row number in range (number rows):
        for alien number in range (number aliens x):
            create alien (Invad set, screen, aliens, alien number,
row number)
def get number alien x(Invad set, alien width):
```

```
available space x = Invad set.width - (2*alien width)
    number aliens x = int(available space x / (1*alien width))
    return number aliens x
def create alien (Invad set, screen, aliens, alien number,
row number):
    alien = Alien(Invad set, screen)
    alien width = alien.rect.width
    alien.x = alien width + (1 * alien width * alien number)
    alien.rect.x = alien.x
    alien.rect.y = alien.rect.height + (1 * alien.rect.height *
row number)
    aliens.add(alien)
def get number rows (Invad set, ship height, alien height):
    available space y = (Invad set.height - (1* alien height) -
ship height)
    number rows = int(available space y / (2* alien height))
    return number rows
def check fleet edges (Invad set, aliens):
    for alien in aliens.sprites():
        if alien.check edges (Invad set):
            change fleet dirc(Invad set, aliens)
            break
def change fleet dirc(Invad set, aliens):
    for alien in aliens.sprites():
        alien.rect.y += Invad set.fleet drop speed
    Invad set.fleet dir *=-1
```

```
def ship hit(Invad set, stats, sb, screen, ship, aliens, bullets):
    if stats.ships left >0:
        effect = pygame.mixer.Sound('Music/LostLife.wav')
        effect.play()
        stats.ships left -= 1
        sb.prep ship()
        aliens.empty()
        bullets.empty()
        create fleet(Invad set, screen, ship, aliens)
        ship.center
        time.sleep(2)
    else:
        effect = pygame.mixer.Sound('Music/GameOver.wav')
        effect.play()
        sb.high score board()
        time.sleep(10)
        stats.game active = False
        pygame.mouse.set visible(True)
def check aliens bottom(Invad set, stats, sb, screen,
ship, aliens, bullets):
    if Invad set.s active == True:
        screen rect = screen.get rect()
        for alien in aliens.sprites():
            if alien.rect.bottom >= screen rect.bottom:
```

Game Stats File(game_stats.py)

```
class GameStats():
    def __init__(self,Invad_set):
        self.Invad_set = Invad_set
        self.reset_stats()
        self.game_active = False

        self.high_score= 1000000

def reset_stats(self):
        self.ships_left = self.Invad_set.ship_limit
        self.score = 0
        self.level = 1
```

Button File(button.py)

```
import pygame.font
class Button():
   def init (self, Invad set, screen, msg):
        self.screen = screen
        #Get the rectangular area of the surface
        self.screen rect = screen.get rect()
        #(Increased width)
        self.width, self.height =250,50
        #Background color(Changed)
        self.b color = (0,0,0)
        #Text color
        self.t color = (255, 255, 255)
        #Font
        self.font = pygame.font.SysFont(None, 48)
        self.rect = pygame.Rect(0,0,self.width,self.height)
        #Center the button
        self.rect.center = self.screen rect.center
        self.prep msg(msg)
    #Makes sure text appears in the centre, also turns it into a
rendered image
   def prep_msg(self,msg):
        self.msg image = self.font.render(msg, True, self.t color,
self.b color)
        self.msg image rect = self.msg image.get rect()
```

```
#Draw blank button and then draw image
def draw_b(self):
    self.screen.fill(self.b_color, self.rect)
    self.screen.blit(self.msg image, self.msg image rect)
```

Scoreboard File(score.py)

```
import pygame
from pygame.sprite import Group
from ship import Ship
import mysql.connector as mycon
class Score():
   def init (self, Invad set, screen, stats):
        self.screen = screen
        self.screen rect = screen.get rect()
        self.Invad set = Invad set
        self.stats = stats
        self.t_color = (47, 255, 0)
        self.bg color=(0,0,0)
        self.font = pygame.font.SysFont("Times New Roman", 50)
#comicsansms
        self.F score()
        self.F high score()
        self.level_f()
        self.prep ship()
   def F score(self):
        self.r score = int(round(self.stats.score, -1))
        self.scores = "{:,}".format(self.r_score)
        self.score image = self.font.render(self.scores, True,
self.t color, self.bg color)
        self.score rect = self.score image.get rect()
```

```
self.score rect.right = self.screen rect.right - 20
        self.score rect.top = 20
    def show score(self):
        self.screen.blit(self.score image, self.score rect)
        self.screen.blit(self.high score image,
self.high score rect)
        self.screen.blit(self.level image, self.level rect)
        self.d image =
self.font.render("P:Pause", True, self.t color, self.bg color)
        self.d rect = self.d image.get rect()
        self.d rect.left = self.screen rect.left +20
        self.d rect.top = 550
        self.r image =
self.font.render("R:Resume", True, self.t color, self.bg color)
        self.r rect = self.r image.get rect()
        self.r rect.left = self.d rect.left
        self.r rect.bottom = self.d rect.bottom + 70
        self.screen.blit(self.d image, self.d rect)
        self.screen.blit(self.r image, self.r_rect)
        for i in range(self.stats.ships left + 1):
            self.screen.blit(self.sh, self.ship rect)
    def F high score(self):
        high score = int(round(self.stats.high score, -1))
        high score s = "{:,}".format(high score)
        self.high score image = self.font.render(high score s,
True, self.t color, self.bg color)
```

```
self.high score rect = self.high score image.get rect()
        self.high score rect.centerx = self.screen rect.centerx
        self.high score rect.top = self.score rect.top
       # self.high score board()
   def level f(self):
        self.level image =
self.font.render(str(self.stats.level), True, self.t color,
self.bg color)
        self.level rect = self.level image.get rect()
        self.level rect.right = self.score rect.right
        self.level rect.top = self.score rect.bottom + 10
   def prep ship(self):
        self.ships = Group()
        for ship number in range(self.stats.ships left):
            self.ship = Ship(self.Invad set, self.screen)
            self.sh = pygame.image.load('img/ship.bmp')
            self.ship rect = self.sh.get rect()
            self.ship wid = self.sh.get width()
            self.ship rect.left = self.screen rect.left
            self.ship rect.top = self.score rect.top
            self.ship.rect x = 10 + (ship number * self.ship wid)
            self.ship.rect y = 10
            self.ships.add(self.ship)
   def high score board(self):
        mydb = mycon.connect(host = "localhost",user =
"root", passwd = "ROOTLAP",
                             database = "kevin the cube")
```

```
cur = mydb.cursor()
        h sc = cur.fetchone()
        cur.execute("select * from High Score")
        h sc = cur.fetchall()
        b=str(input("Enter Your Name: "))
        a=0
        print(h sc)
        c=self.r score
        for row in h sc:
            if row[-1] >= c:
                a=row[0]
                print("check 1")
                continue
            elif row[-1] < c:
                a = row[0]
                print("check 1.1")
                break
        print(4)
        if a!=0:
            s = "INSERT INTO High Score(Rank, Name, Score)
VALUES({},'{}',{})".format(a,b,c)
            aa= "update High Score set Rank =Rank + {} where
Rank_{-} < {};".format(1,a)
            cur.execute(aa)
            mydb.commit()
            cur.execute(s)
            mydb.commit()
            print("check 2.1")
        else:
```

Bullet file(bullet.py)

```
import pygame
from pygame.sprite import Sprite
class Bullet(Sprite):
    def init (self,Invad set,screen,ship):
        super(Bullet, self). init ()
        self.screen = screen
        self.rect = pygame.Rect(0,0,Invad set.bullet width,
Invad set.bullet height)
        #Bullet comes from centre of the ship
        self.rect.centerx = ship.rect.centerx
        self.rect.top = ship.rect.top
        self.y = float(self.rect.y)
        self.color = Invad_set.bullet_color
        self.speed = Invad set.bullet speed
    def update(self):
        self.y -=self.speed
        self.rect.y = self.y
    def draw bullet(self):
       pygame.draw.rect(self.screen, self.color, self.rect)
```

Alien File(alien.py)

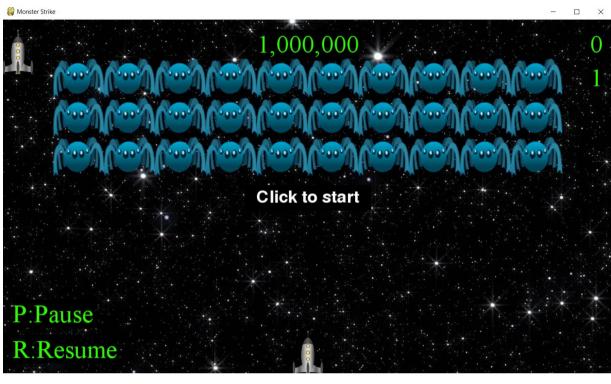
```
import pygame
#Sprite is a pygame module with basic game object classes
from pygame.sprite import Sprite
class Alien(Sprite):
   def init (self, Invad set, screen):
        super(Alien, self). init ()
        self.screen = screen
        self.Invad set = Invad set
        #Changed alien image
        self.image = pygame.image.load('img/alien.bmp')
        #Doubt
        self.rect = self.image.get rect()
        self.rectx = self.rect.width
        self.recty = self.rect.height
        self.x = float(self.rect.x)
   def blitme(self):
        #Doubt
        self.screen.blit(self.image, self.rect)
   def check_edges(self,Invad_set):
        if Invad set.s active == True:
            screen rect = self.screen.get rect()
            if self.rect.right>= screen rect.right:
                return True
            elif self.rect.left <= 0:</pre>
                return True
        else:
            pass
```

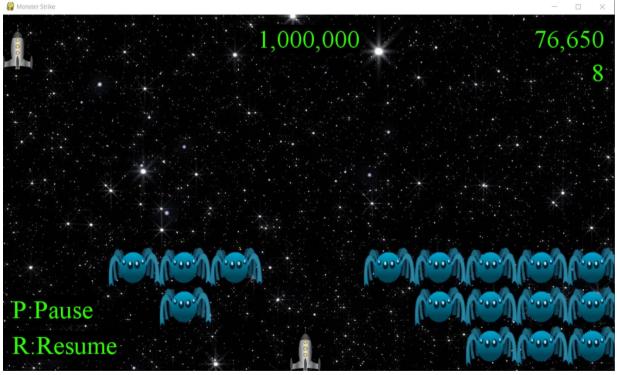
```
def update(self):
    self.x += (self.Invad_set.alien_speed_factor *
self.Invad_set.fleet_dir)
    self.rect.x = self.x
```

Database Structure

```
create table High_Score(Rank_ int,Name_ varchar(30) unique, Score
int not null,primary key(Rank_));
insert into High_Score values(1,'Gogeta',100000000);
insert into High_Score values(2,'Ronin',99999000);
insert into High_Score values(3,'Ninja',5000000);
insert into High_Score values(4,'Fresh',4000050);
insert into High_Score values(5,'VV',2990950);
insert into High_Score values(6,'Beta',900950);
insert into High_Score values(7,'Golu',850000);
insert into High_Score values(8,'Police',600000);
insert into High_Score values(9,'Batman',500000);
insert into High_Score values(10,'Jiren',400950);
#drop table High_Score;
select * from High Score;
```

OUTPUT





Monster Strike	15-12-2	.019 13:05 File fol	der
pycache	15-12-2019 18:02	File folder	
📙 img	13-12-2019 23:08	File folder	
misc misc	13-12-2019 23:08	File folder	
Music	13-12-2019 23:08	File folder	
🍙 alien.py	13-12-2019 23:08	Python File	2 KB
labullet.py	13-12-2019 23:08	Python File	1 KB
р button.py	13-12-2019 23:08	Python File	2 KB
р game_func.py	15-12-2019 14:48	Python File	9 KB
🍙 game_stats.py	13-12-2019 23:08	Python File	1 KB
🍙 score.py	15-12-2019 15:55	Python File	5 KB
ScoreBoard.sql	13-12-2019 23:08	SQL Text File	1 KB
🍙 settings.py	15-12-2019 15:05	Python File	2 KB
🌛 ship.py	15-12-2019 14:52	Python File	2 KB
le Window.py	15-12-2019 18:02	Python File	2 KB

	<u>'</u>	<u> </u>	<u>'</u>
alien.bmp	12-06-2019 18:06	BMP File	31 KB
■ BG.jpg	30-06-2019 20:03	JPG File	161 KB
cube.bmp	30-06-2019 20:28	BMP File	14 KB
nero.bmp	04-07-2019 15:47	BMP File	9 KB
🔟 logo bg.bmp	30-06-2019 20:12	BMP File	8,101 KB
maxresdefault.bmp	30-06-2019 15:04	BMP File	391 KB
ship.bmp	12-06-2019 13:29	BMP File	21 KB
ship.gif	30-06-2019 19:17	GIF File	6 KB

Background Music
GameOver.wav
Gun Sound.mp3
GunSound.wav
LevelUp.wav
LostLife.wav
Music.mp3

Scope Of Improvement

- We can add HEALTH bar for the ship instead of 1 hit death.
- ➤ We can also develop a better Pause Menu.
- ➤ We can also add a feature where the user can chose his/her desired hero from the give choices.

Bibliography

- https://www.pygame.org/docs/
- ➤ Phyton Programming by Dr.R.Nageswara
- ➤ Python GUI Programming by Burkhard A. Meier