KNC 402 Python Lab

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Check all files here at github

Practical 12

```python
print("Lab 12 by Ashutosh Joshi")
def mergeSort(myList):
    if len(myList) > 1:
        mid = len(myList) // 2
        left = myList[:mid]
        right = myList[mid:]
        mergeSort(left)
        mergeSort(right)
        i = 0
        j = 0
        k = 0
        while i < len(left) and j < len(right):
            if left[i] <= right[j]:
                myList[k] = left[i]
                i += 1
            else:
                myList[k] = right[j]
                j += 1
            k += 1
        while i < len(left):
            myList[k] = left[i]
            i += 1
            k += 1

        while j < len(right):
            myList[k]=right[j]
            j += 1
            k += 1

myList = [41, 59, 26, 53, 59,4,6,786,33,2]
print(mergeSort(myList))
```

Output

```
C:\Users\microlab\Desktop\knc-402-python-lab>python lab12.py
[2, 4, 6, 26, 33, 41, 53, 59, 59, 786]
```

Practical 13

```python
print("Lab 13 by Ashutosh Joshi")
def Prime(n):
    for i in range(2,n//2+1):
        if(n%i==0):
            return(0)
    return(1)

N=int(input("Enter N:"))
i=2
lst=[]
while(1):
    if(Prime(i)):
        lst.append(i)
        if(len(lst)==N):
            break
    i+=1
print("First "+str(N)+" Prime numbers are:",end="")
print(*lst)
```
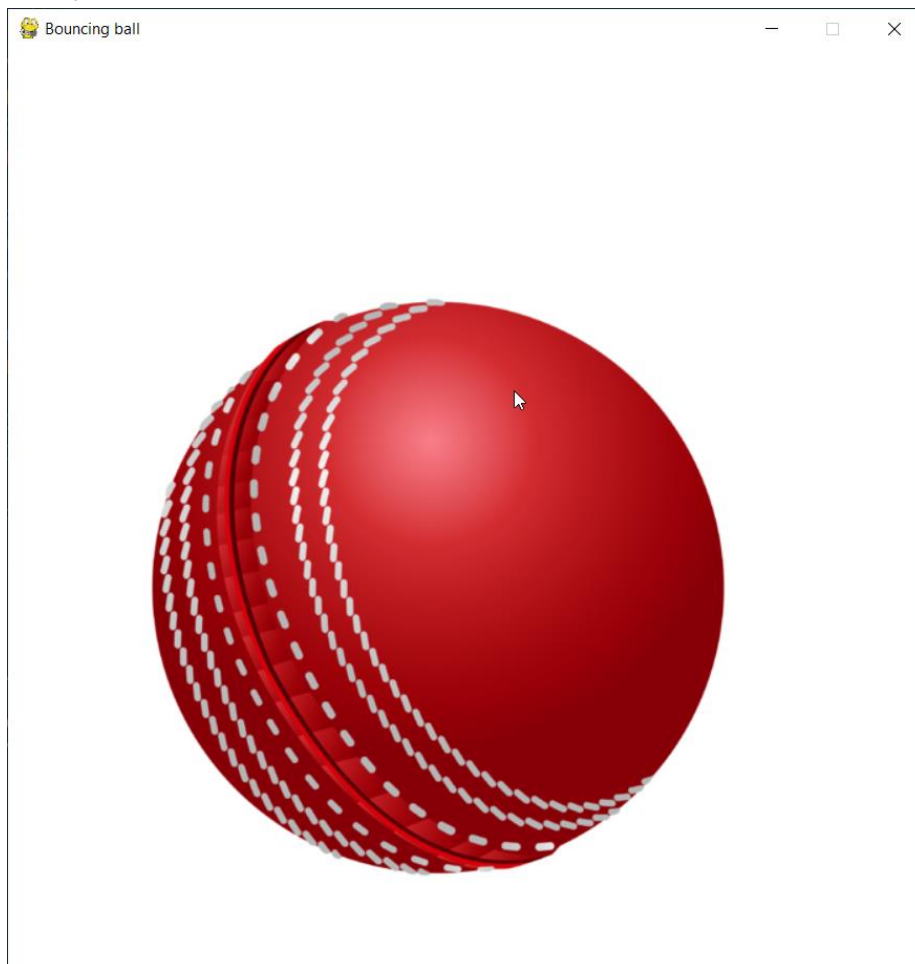
Output

```
C:\Users\microlab\Desktop\knc-402-python-lab>python lab13.py
Lab 13 by Ashutosh Joshi
Enter N:80
First 80 Prime numbers are:2 3 5 7 11 13 17 19 23 29 31 37 41 43 47 53 59 61 67 71 73 79 83 89 97 101 103 107 109 113 127 131 137 139
 149 151 157 163 167 173 179 181 191 193 197 199 211 223 227 229 233 239 241 251 257 263 269 271 277 281 283 293 307 311 313 317 331
 337 347 349 353 359 367 373 379 383 389 397 401 409
```

Practical 14

```python
import sys, pygame
print("Lab 14 by Ashutosh Joshi")
pygame.init()

size = width, height = 700, 700
speed = [1, 1]
background = 255, 255, 255

screen = pygame.display.set_mode(size)
pygame.display.set_caption("Bouncing ball")

ball = pygame.image.load("ball.png")
ballrect = ball.get_rect()

while 1:
    for event in pygame.event.get():
        if event.type == pygame.QUIT: sys.exit()

    ballrect = ballrect.move(speed)
    if ballrect.left < 0 or ballrect.right > width:
        speed[0] = -speed[0]
    if ballrect.top < 0 or ballrect.bottom > height:
        speed[1] = -speed[1]

    screen.fill(background)
    screen.blit(ball, ballrect)
    pygame.display.flip()
```

Output


```
C:\Users\microlab\Desktop\knc-402-python-lab>python lab14.py
pygame 2.0.1 (SDL 2.0.14, Python 3.8.2)
Hello from the pygame community. https://www.pygame.org/contribute.html
Lab 14 by Ashutosh Joshi
```