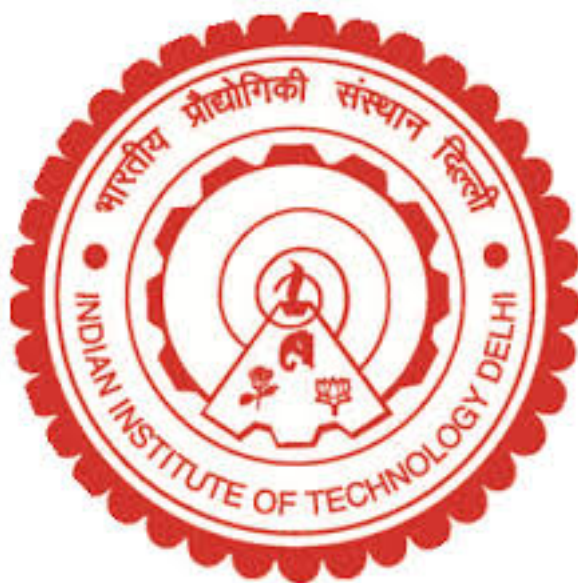# Assignment-8

ELP - 718 Telecomm Software Laboratory

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A report presented for the assignment on
Python

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1   Problem Statement-1

1.1   Problem Statement

Parity Check The simplest way of error detection is to append a single bit, called a parity check, to a string of data bits. This parity check bit has the value **1** if the number of 1's in the bit string is even and has the value **0** otherwise, i.e., Odd Parity Check.

Bit-Oriented Framing Data Link Layer needs to pack bits into frames so that each frame is distinguishable from another. Frames can be fixed or variable size. In variable size framing, we define the end of the frame using a bit-oriented approach. It uses a special string of bits, called a flag for both idle fills and to indicate the beginning and the ending of frames.
The bit stuffing rule is to insert a **0** after each appearance of **010** in the original data.
The string **0101** is used as the bit string or flag to indicate the end of the frame.

1.2   Assumptions

- We are assuming that if number of **one's** is **even** then we add **'1'**.

- We are assuming that if number of **one's** is **odd** then we add **'0'**

- If we get **'010'** in the bit we have to append **'0'** after that **'010'** bit.

1.3   Algorithm and Implementation

1. Enter the parity bit and we save it as a string.

2. Then we declare variables and lists.

3. Then we use **for loop** for inserting bits one by one and then checking it if '1' or '0' using **if-else**.

4. Then be also add variable inside **if i=='1'** and then check it for even and odd by dividing it by 2 using **if-else command**.

5. Then we append '1' or '0' inside if-else as per condition.

6. Then we print the parity.

7. For 2nd part we just append one by one bit into list using for and **append(i)**.

8. Then we check the list one by one using 3 **if-else command** and inserting '1' using **.insert(..,..)** command and also saving values where we appending '1' in **list y**.

9. Then we put those **y values** and change the **'0'** value.

10. Then we append '0101' in the end

11. Then we print the Transmitting data.
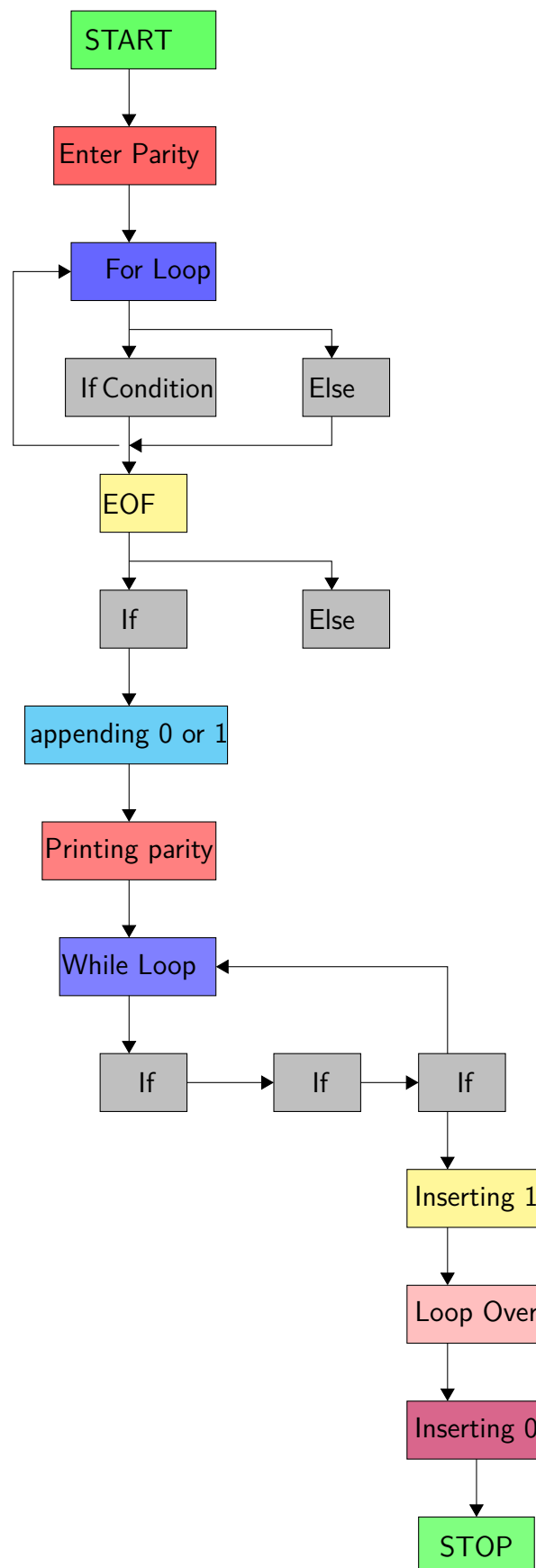
1.4   Program Structure of PS1

Figure 1: Flow Chart ps1

1.5   Difficulties Issued

- For checking even-odd number of 1's.

- For checking '010' in the parity bits.

- For appending into a string from list.

1.6   Input-Output Format

1.6.1   Input Format

Enter binary bit data that has to be transmitted.

1.6.2   Output Format

Print binary bit data with parity bit.
Print the modified string that is to be transmitted

1.6.3   Sample Input

010101110100101

1.6.4   Sample Output

Parity bit data :0101011101001011
Transmitting data:010**0**10111010**0**010**0**110**0101**

1.7   Screenshot of PS1


```
/home/manaskankane/2019JTM2166_Assignment-8/v/bin/python /home/manaskankane/2019JTM2166_Assi
Enter the parity bit data : 010101110100101

Parity bit data is 0101011101001011

Transmitting data : 010010111010000100110101
```

Figure 2: Screenshot of PS1

2   Problem Statement-2

2.1   Problem Statement

3X3 Numeric Tic-Tac-Toe (Use numbers 1 to 9 instead of X's and O's) One player plays with the odd numbers (1, 3, 5, 7, 9) and the other player plays with the even numbers (2,4,6,8). All numbers can be used only once. The player who puts down 15 points in a line wins (sum of 3 numbers). Always Player with odd numbers starts the game. Once a line contains two numbers whose sum is 15 or greater, there is no way to complete that line, although filling in the remaining cells might be necessary to complete a different line.
Note – Line can be horizontal, vertical or diagonal

Constraints:

- 1¡=Position¡=9

- 1¡=Number¡=9

Terminal:

- Print 'Welcome to the Game!'.

- Print whether it is Player 1's or Player 2's chance.

- Get the position and number to be entered from the user.

- Show tic tac toe with data

- Continue till the game gets draw or some player wins and show the result.

- Ask the user whether to continue for the next game or exit.

2.2   Assumptions

- We have given a position not less than or equal 1 and not greater than equal to 9.

- We have also given the numbers should be between 1 to 9 with 1 and 9 included.

2.3   Algorithm and Implementation

1. We first declare the list and variable.

2. Then we use **while 1**.

3. Then we ask for choice, players name.

4. Then we slice the list and save it into a string and printing it.

5. Then we use while loop and ask for position and number of player1.

6. Then we insert it into a list and convert a list into a string.

7. Then we add the list numbers and check it for 15, if then player1 wins.

8. If all the rows and coloums sum is greater than 15 then match is draw.

9. Same for player2 and we have taken if-else for checking the position.

10. We have also added the constraint for position, match draw and for exit also.

2.4 Difficulties Issued

- For slicing the list into string.

- For taking while loops and closing it.

- Sending the data from list to string and printing it.

- Adding all the numbers we put and checking for 15 or greater than 15.

2.5 Input-Output Format

2.5.1 Input Format

Enter your choice:
Enter the position and number:

Like this upto 9 turns for both player1 and player2

2.5.2 Output Format

Enter your choice: 1
Enter the position and number: 5,3
000
030
000
Enter the position and number: 7,4
000
030
400

and soon upto 9 turns.
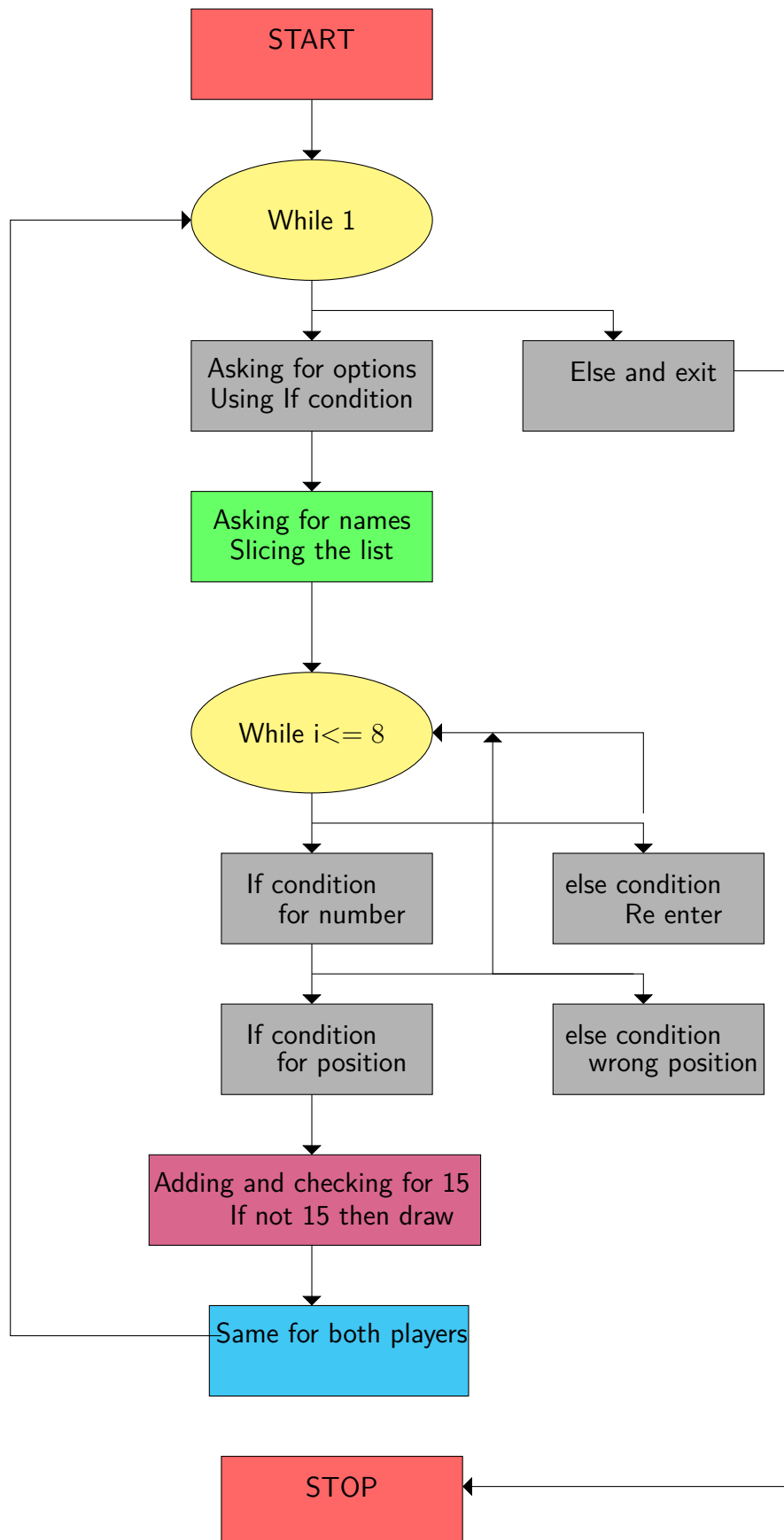
2.6 Program Structure

Figure 3: Flow Chart of PS2

2.7 Screenshot of PS2

```
/home/manaskankane/2019JTM2166_Assignment-8/v/bin/python /home/manaskankane/2019JTM2166_Assignment-8/Assignment_8
---------------------------
Welcome to the Game
---------------------------

1. Play Tic-Tac-Toe Game
2. Exit

Enter your choice : 1

Enter player 1 name : manas

Enter player 2 name : anjay

What you want to become even player or odd player : odd

Player manas is odd player and Player anjay is even player

-------Game Started-------

000
000
000
Enter position player manas : 1
Enter number player manas : 5
500
000
000
Enter position player anjay : 2
Enter number player anjay : 5
550
000
000
Enter position player manas : 3
Enter number player manas : 5
555
000
000
Player manas Wins

1. Play Tic-Tac-Toe Game
2. Exit

Enter your choice : 2
---------------------------
Thank You for Playing Game
---------------------------
```
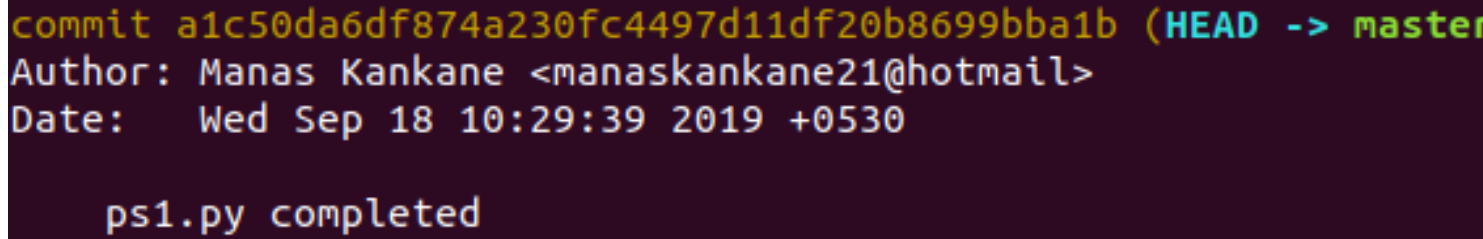
Figure 4: Screenshot of PS2
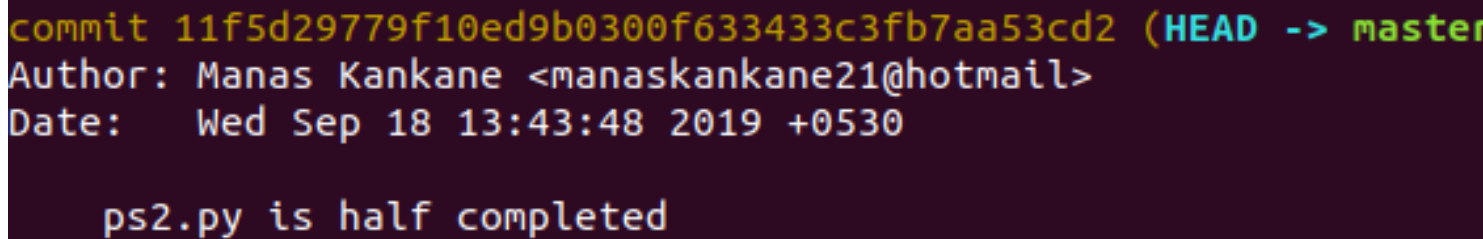
3   GIT Screenshots
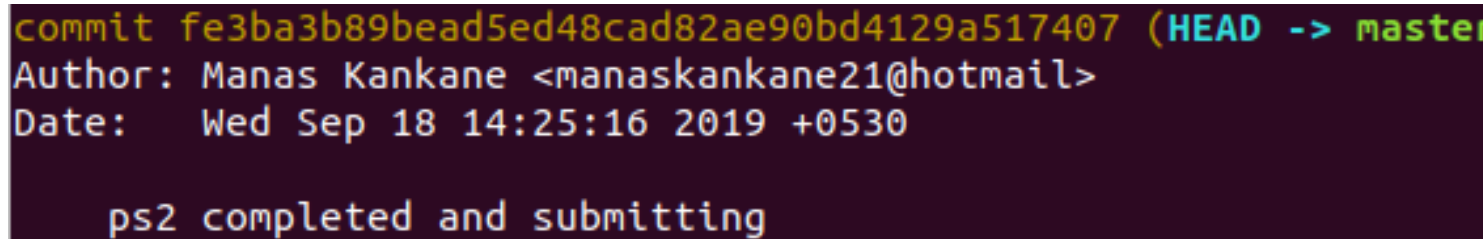
Figure 5: Screenshot of git1

Figure 6: Screenshot of git2

Figure 7: Screenshot of git3

4   Repositarty Link

https://github.com/2019JTM2166/Assignment_8.git

5 Appendix

5.1 Appendix-ps1

```python
a=input('Enter the parity bit data : ')
name=a.split()
b=0
c=0
x=[]
y=[]
for i in a:
if i=='1':
b=b+1
else:
c=0
if b%2==0:
for i in name:
name1=i + '1'
else:
for i in name:
name1 = i + '0'
print('\nParity bit data is {}'.format(name1))
for i in name1:
x.append(i)
#print(x)
while c < len(a):
if x[c]=='0':
if x[c+1]=='1':
if x[c+2]=='0':
x.insert(c+3,'1')
y.append(c+3)
c=c+1
x[y[0]]= '0'
x[y[1]]= '0'
x[y[2]+1]='0'
x.append('0101')
#print(x)
name2=''.join(x)
print('\nTransmitting data : {}'.format(name2))
```

5.2 Appendix-ps2

```python
print('——————————————————————')
print('Welcome to the Game')
print('——————————————————————')
list1=['0','0','0','0','0','0','0','0','0']
list2=[0,0,0,0,0,0,0,0,0]
a1=0
a2=0
a3=0
a4=0
a5=0
a6=0
a7=0
a8=0
a9=0
x=0
while 1:
```

```python
print('\n1. Play Tic-Tac-Toe Game\n2. Exit')
a=int(input('\nEnter your choice : '))
if a==1:
b=str(input('\nEnter player 1 name : '))
c=str(input('\nEnter player 2 name : '))
d=str(input('\nWhat you want to become even player or odd player : '))
print('\nPlayer {} is odd player and Player {} is even player'.format(b,c))
print('\n--------Game Started--------\n')
string=''.join(list1)
print(string[0:3])
print(string[3:6])
print(string[6:9])
while x<=8:
pos1=input('Enter position player {} : '.format(b))
num1=input('Enter number player {} : '.format(b))
if num1 >='1' and num1 <='9':
if pos1=='1':
list1[0]=num1
list2[0]=int(num1)
string = ''.join(list1)
print(string[0:3])
print(string[3:6])
print(string[6:9])
a1=list2[0]
a2=list2[1]
a3 = list2[2]
a4 = list2[3]
a5 = list2[4]
a6 = list2[5]
a7 = list2[6]
a8 = list2[7]
a9 = list2[8]
if (a1+a2+a3)==15 or (a4+a5+a6)==15 or (a7+a8+a9)==15 or (a1+a4+a7)==15 or (a2+a5+
    a8)==15 or (a3+a6+a9)==15 or (a1+a5+a9)==15 or (a3+a5+a7)==15:
print('Player {} Wins'.format(b))
break
if (a1 + a2 + a3) >= 15 and (a4 + a5 + a6) >= 15 and (a7 + a8 + a9) >= 15 and (a1
    + a4 + a7) >= 15 and (a2 + a5 + a8) >= 15 and (a3 + a6 + a9) >= 15 and (a1 + a5
    + a9) >= 15 and (a3 + a5 + a7) >= 15:
print('\n--------Game Draw--------\n')
print('\n--------Better Luck Next Time--------\n')
break
elif pos1=='2':
list1[1] = num1
list2[1] = int(num1)
string = ''.join(list1)
print(string[0:3])
print(string[3:6])
print(string[6:9])
a1 = list2[0]
a2 = list2[1]
a3 = list2[2]
a4 = list2[3]
a5 = list2[4]
a6 = list2[5]
a7 = list2[6]
a8 = list2[7]
a9 = list2[8]
if (a1 + a2 + a3) == 15 or (a4 + a5 + a6) == 15 or (a7 + a8 + a9) == 15 or (a1 +
    a4 + a7) == 15 or (a2 + a5 + a8) == 15 or (a3 + a6 + a9) == 15 or (a1 + a5 + a9
```

```python
            ) == 15 or (a3 + a5 + a7) == 15:
73      print('Player {} Wins'.format(b))
74      break
75  if (a1 + a2 + a3) >= 15 and (a4 + a5 + a6) >= 15 and (a7 + a8 + a9) >= 15 and (
76  a1 + a4 + a7) >= 15 and (a2 + a5 + a8) >= 15 and (a3 + a6 + a9) >= 15 and (
77  a1 + a5 + a9) >= 15 and (a3 + a5 + a7) >= 15:
78      print('\n————————Game Draw————————\n')
79      print('\n————————Better Luck Next Time————————\n')
80      break
81  elif pos1=='3':
82      list1[2] = num1
83      list2[2] = int(num1)
84      string = ''.join(list1)
85      print(string[0:3])
86      print(string[3:6])
87      print(string[6:9])
88      a1 = list2[0]
89      a2 = list2[1]
90      a3 = list2[2]
91      a4 = list2[3]
92      a5 = list2[4]
93      a6 = list2[5]
94      a7 = list2[6]
95      a8 = list2[7]
96      a9 = list2[8]
97  if (a1 + a2 + a3) == 15 or (a4 + a5 + a6) == 15 or (a7 + a8 + a9) == 15 or (a1 +
        a4 + a7) == 15 or (a2 + a5 + a8) == 15 or (a3 + a6 + a9) == 15 or (a1 + a5 + a9
        ) == 15 or (a3 + a5 + a7) == 15:
98      print('Player {} Wins'.format(b))
99      break
100  if (a1 + a2 + a3) >= 15 and (a4 + a5 + a6) >= 15 and (a7 + a8 + a9) >= 15 and (
101  a1 + a4 + a7) >= 15 and (a2 + a5 + a8) >= 15 and (a3 + a6 + a9) >= 15 and (
102  a1 + a5 + a9) >= 15 and (a3 + a5 + a7) >= 15:
103      print('\n————————Game Draw————————\n')
104      print('\n————————Better Luck Next Time————————\n')
105      break
106  elif pos1=='4':
107      list1[3] = num1
108      list2[3] = int(num1)
109      string = ''.join(list1)
110      print(string[0:3])
111      print(string[3:6])
112      print(string[6:9])
113      a1 = list2[0]
114      a2 = list2[1]
115      a3 = list2[2]
116      a4 = list2[3]
117      a5 = list2[4]
118      a6 = list2[5]
119      a7 = list2[6]
120      a8 = list2[7]
121      a9 = list2[8]
122  if (a1 + a2 + a3) == 15 or (a4 + a5 + a6) == 15 or (a7 + a8 + a9) == 15 or (a1 +
        a4 + a7) == 15 or (a2 + a5 + a8) == 15 or (a3 + a6 + a9) == 15 or (a1 + a5 + a9
        ) == 15 or (a3 + a5 + a7) == 15:
123      print('Player {} Wins'.format(b))
124      break
125  if (a1 + a2 + a3) >= 15 and (a4 + a5 + a6) >= 15 and (a7 + a8 + a9) >= 15 and (
126  a1 + a4 + a7) >= 15 and (a2 + a5 + a8) >= 15 and (a3 + a6 + a9) >= 15 and (
127  a1 + a5 + a9) >= 15 and (a3 + a5 + a7) >= 15:
```

```python
128  print('\n————Game Draw—————\n')
129  print('\n————Better Luck Next Time————\n')
130  break
131  elif pos1=='5':
132  list1[4] = num1
133  list2[4] = int(num1)
134  string = ''.join(list1)
135  print(string[0:3])
136  print(string[3:6])
137  print(string[6:9])
138  a1 = list2[0]
139  a2 = list2[1]
140  a3 = list2[2]
141  a4 = list2[3]
142  a5 = list2[4]
143  a6 = list2[5]
144  a7 = list2[6]
145  a8 = list2[7]
146  a9 = list2[8]
147  if (a1 + a2 + a3) == 15 or (a4 + a5 + a6) == 15 or (a7 + a8 + a9) == 15 or (a1 +
         a4 + a7) == 15 or (a2 + a5 + a8) == 15 or (a3 + a6 + a9) == 15 or (a1 + a5 + a9
         ) == 15 or (a3 + a5 + a7) == 15:
148  print('Player {} Wins'.format(b))
149  break
150  if (a1 + a2 + a3) >= 15 and (a4 + a5 + a6) >= 15 and (a7 + a8 + a9) >= 15 and (
151  a1 + a4 + a7) >= 15 and (a2 + a5 + a8) >= 15 and (a3 + a6 + a9) >= 15 and (
152  a1 + a5 + a9) >= 15 and (a3 + a5 + a7) >= 15:
153  print('\n————Game Draw—————\n')
154  print('\n————Better Luck Next Time————\n')
155  break
156  elif pos1=='6':
157  list1[5] = num1
158  list2[5] = int(num1)
159  string = ''.join(list1)
160  print(string[0:3])
161  print(string[3:6])
162  print(string[6:9])
163  a1 = list2[0]
164  a2 = list2[1]
165  a3 = list2[2]
166  a4 = list2[3]
167  a5 = list2[4]
168  a6 = list2[5]
169  a7 = list2[6]
170  a8 = list2[7]
171  a9 = list2[8]
172  if (a1 + a2 + a3) == 15 or (a4 + a5 + a6) == 15 or (a7 + a8 + a9) == 15 or (a1 +
         a4 + a7) == 15 or (a2 + a5 + a8) == 15 or (a3 + a6 + a9) == 15 or (a1 + a5 + a9
         ) == 15 or (a3 + a5 + a7) == 15:
173  print('Player {} Wins'.format(b))
174  break
175  if (a1 + a2 + a3) >= 15 and (a4 + a5 + a6) >= 15 and (a7 + a8 + a9) >= 15 and (a1
         + a4 + a7) >= 15 and (a2 + a5 + a8) >= 15 and (a3 + a6 + a9) >= 15 and (a1 + a5
         + a9) >= 15 and (a3 + a5 + a7) >= 15:
176  print('\n————Game Draw—————\n')
177  print('\n————Better Luck Next Time————\n')
178  break
179  elif pos1=='7':
180  list1[6] = num1
181  list2[6] = int(num1)
```

```python
string = ''.join(list1)
print(string[0:3])
print(string[3:6])
print(string[6:9])
a1 = list2[0]
a2 = list2[1]
a3 = list2[2]
a4 = list2[3]
a5 = list2[4]
a6 = list2[5]
a7 = list2[6]
a8 = list2[7]
a9 = list2[8]
if (a1 + a2 + a3) == 15 or (a4 + a5 + a6) == 15 or (a7 + a8 + a9) == 15 or (a1 +
    a4 + a7) == 15 or (a2 + a5 + a8) == 15 or (a3 + a6 + a9) == 15 or (a1 + a5 + a9
    ) == 15 or (a3 + a5 + a7) == 15:
print('Player {} Wins'.format(b))
break
if (a1 + a2 + a3) >= 15 and (a4 + a5 + a6) >= 15 and (a7 + a8 + a9) >= 15 and (a1
    + a4 + a7) >= 15 and (a2 + a5 + a8) >= 15 and (a3 + a6 + a9) >= 15 and (a1 + a5
    + a9) >= 15 and (a3 + a5 + a7) >= 15:
print('\n————Game Draw————\n')
print('\n————Better Luck Next Time————\n')
break
elif pos1=='8':
list1[7] = num1
list2[7] = int(num1)
string = ''.join(list1)
print(string[0:3])
print(string[3:6])
print(string[6:9])
a1 = list2[0]
a2 = list2[1]
a3 = list2[2]
a4 = list2[3]
a5 = list2[4]
a6 = list2[5]
a7 = list2[6]
a8 = list2[7]
a9 = list2[8]
if (a1 + a2 + a3) == 15 or (a4 + a5 + a6) == 15 or (a7 + a8 + a9) == 15 or (a1 +
    a4 + a7) == 15 or (a2 + a5 + a8) == 15 or (a3 + a6 + a9) == 15 or (a1 + a5 + a9
    ) == 15 or (a3 + a5 + a7) == 15:
print('Player {} Wins'.format(b))
break
if (a1 + a2 + a3) >= 15 and (a4 + a5 + a6) >= 15 and (a7 + a8 + a9) >= 15 and (a1
    + a4 + a7) >= 15 and (a2 + a5 + a8) >= 15 and (a3 + a6 + a9) >= 15 and (a1 + a5
    + a9) >= 15 and (a3 + a5 + a7) >= 15:
print('\n————Game Draw————\n')
print('\n————Better Luck Next Time————\n')
break
elif pos1=='9':
list1[8] = num1
list2[8] = int(num1)
string = ''.join(list1)
print(string[0:3])
print(string[3:6])
print(string[6:9])
a1 = list2[0]
a2 = list2[1]
```

```
234  a3 = list2[2]
235  a4 = list2[3]
236  a5 = list2[4]
237  a6 = list2[5]
238  a7 = list2[6]
239  a8 = list2[7]
240  a9 = list2[8]
241  if (a1 + a2 + a3) == 15 or (a4 + a5 + a6) == 15 or (a7 + a8 + a9) == 15 or (a1 +
         a4 + a7) == 15 or (a2 + a5 + a8) == 15 or (a3 + a6 + a9) == 15 or (a1 + a5 + a9
         ) == 15 or (a3 + a5 + a7) == 15:
242  print('Player {} Wins'.format(b))
243  break
244  if (a1 + a2 + a3) >= 15 and (a4 + a5 + a6) >= 15 and (a7 + a8 + a9) >= 15 and (a1
         + a4 + a7) >= 15 and (a2 + a5 + a8) >= 15 and (a3 + a6 + a9) >= 15 and (a1 + a5
         + a9) >= 15 and (a3 + a5 + a7) >= 15:
245  print('\n————————Game Draw————————\n')
246  print('\n————————Better Luck Next Time————————\n')
247  break
248  else:
249  print('\n————————Game Error————————\n')
250  print('You entered wrong position')
251  print('\nEnter Again\n')
252  continue
253
254  pos2 = input('Enter position player {} : '.format(c))
255  num2 = input('Enter number player {} : '.format(c))
256  if num2 >= '1' and num2 <= '9':
257  if pos2 == '1':
258  list1[0] = num2
259  list2[0] = int(num2)
260  string = ''.join(list1)
261  print(string[0:3])
262  print(string[3:6])
263  print(string[6:9])
264  a1 = list2[0]
265  a2 = list2[1]
266  a3 = list2[2]
267  a4 = list2[3]
268  a5 = list2[4]
269  a6 = list2[5]
270  a7 = list2[6]
271  a8 = list2[7]
272  a9 = list2[8]
273  if (a1 + a2 + a3) == 15 or (a4 + a5 + a6) == 15 or (a7 + a8 + a9) == 15 or (a1 +
         a4 + a7) == 15 or (
274  a2 + a5 + a8) == 15 or (a3 + a6 + a9) == 15 or (a1 + a5 + a9) == 15 or (a3 + a5 +
         a7) == 15:
275  print('Player {} Wins'.format(c))
276  break
277  if (a1 + a2 + a3) >= 15 and (a4 + a5 + a6) >= 15 and (a7 + a8 + a9) >= 15 and (a1
         + a4 + a7) >= 15 and (a2 + a5 + a8) >= 15 and (a3 + a6 + a9) >= 15 and (a1 + a5
         + a9) >= 15 and (a3 + a5 + a7) >= 15:
278  print('\n————————Game Draw————————\n')
279  print('\n————————Better Luck Next Time————————\n')
280  break
281  elif pos2 == '2':
282  list1[1] = num2
283  list2[1] = int(num2)
284  string = ''.join(list1)
285  print(string[0:3])
```

```python
286  print(string[3:6])
287  print(string[6:9])
288  a1 = list2[0]
289  a2 = list2[1]
290  a3 = list2[2]
291  a4 = list2[3]
292  a5 = list2[4]
293  a6 = list2[5]
294  a7 = list2[6]
295  a8 = list2[7]
296  a9 = list2[8]
297  if (a1 + a2 + a3) == 15 or (a4 + a5 + a6) == 15 or (a7 + a8 + a9) == 15 or (a1 +
         a4 + a7) == 15 or (
298  a2 + a5 + a8) == 15 or (a3 + a6 + a9) == 15 or (a1 + a5 + a9) == 15 or (a3 + a5 +
         a7) == 15:
299  print('Player {} Wins'.format(c))
300  break
301  if (a1 + a2 + a3) >= 15 and (a4 + a5 + a6) >= 15 and (a7 + a8 + a9) >= 15 and (a1
         + a4 + a7) >= 15 and (a2 + a5 + a8) >= 15 and (a3 + a6 + a9) >= 15 and (a1 + a5
         + a9) >= 15 and (a3 + a5 + a7) >= 15:
302  print('\n————Game Draw————\n')
303  print('\n————Better Luck Next Time————\n')
304  break
305  elif pos2 == '3':
306  list1[1] = num2
307  list2[1] = int(num2)
308  string = ''.join(list1)
309  print(string[0:3])
310  print(string[3:6])
311  print(string[6:9])
312  a1 = list2[0]
313  a2 = list2[1]
314  a3 = list2[2]
315  a4 = list2[3]
316  a5 = list2[4]
317  a6 = list2[5]
318  a7 = list2[6]
319  a8 = list2[7]
320  a9 = list2[8]
321  if (a1 + a2 + a3) == 15 or (a4 + a5 + a6) == 15 or (a7 + a8 + a9) == 15 or (a1 +
         a4 + a7) == 15 or (
322  a2 + a5 + a8) == 15 or (a3 + a6 + a9) == 15 or (a1 + a5 + a9) == 15 or (a3 + a5 +
         a7) == 15:
323  print('Player {} Wins'.format(c))
324  break
325  if (a1 + a2 + a3) >= 15 and (a4 + a5 + a6) >= 15 and (a7 + a8 + a9) >= 15 and (a1
         + a4 + a7) >= 15 and (a2 + a5 + a8) >= 15 and (a3 + a6 + a9) >= 15 and (a1 + a5
         + a9) >= 15 and (a3 + a5 + a7) >= 15:
326  print('\n————Game Draw————\n')
327  print('\n————Better Luck Next Time————\n')
328  break
329  elif pos2 == '4':
330  list1[1] = num2
331  list2[1] = int(num2)
332  string = ''.join(list1)
333  print(string[0:3])
334  print(string[3:6])
335  print(string[6:9])
336  a1 = list2[0]
337  a2 = list2[1]
```

```python
338  a3 = list2[2]
339  a4 = list2[3]
340  a5 = list2[4]
341  a6 = list2[5]
342  a7 = list2[6]
343  a8 = list2[7]
344  a9 = list2[8]
345  if (a1 + a2 + a3) == 15 or (a4 + a5 + a6) == 15 or (a7 + a8 + a9) == 15 or (a1 +
         a4 + a7) == 15 or (
346  a2 + a5 + a8) == 15 or (a3 + a6 + a9) == 15 or (a1 + a5 + a9) == 15 or (a3 + a5 +
         a7) == 15:
347  print('Player {} Wins'.format(c))
348  break
349  if (a1 + a2 + a3) >= 15 and (a4 + a5 + a6) >= 15 and (a7 + a8 + a9) >= 15 and (a1
         + a4 + a7) >= 15 and (a2 + a5 + a8) >= 15 and (a3 + a6 + a9) >= 15 and (a1 + a5
         + a9) >= 15 and (a3 + a5 + a7) >= 15:
350  print('\n————————Game Draw————————\n')
351  print('\n————————Better Luck Next Time————————\n')
352  break
353  elif pos2 == '5':
354  list1[1] = num2
355  list2[1] = int(num2)
356  string = ''.join(list1)
357  print(string[0:3])
358  print(string[3:6])
359  print(string[6:9])
360  a1 = list2[0]
361  a2 = list2[1]
362  a3 = list2[2]
363  a4 = list2[3]
364  a5 = list2[4]
365  a6 = list2[5]
366  a7 = list2[6]
367  a8 = list2[7]
368  a9 = list2[8]
369  if (a1 + a2 + a3) == 15 or (a4 + a5 + a6) == 15 or (a7 + a8 + a9) == 15 or (a1 +
         a4 + a7) == 15 or (
370  a2 + a5 + a8) == 15 or (a3 + a6 + a9) == 15 or (a1 + a5 + a9) == 15 or (a3 + a5 +
         a7) == 15:
371  print('Player {} Wins'.format(c))
372  break
373  if (a1 + a2 + a3) >= 15 and (a4 + a5 + a6) >= 15 and (a7 + a8 + a9) >= 15 and (a1
         + a4 + a7) >= 15 and (a2 + a5 + a8) >= 15 and (a3 + a6 + a9) >= 15 and (a1 + a5
         + a9) >= 15 and (a3 + a5 + a7) >= 15:
374  print('\n————————Game Draw————————\n')
375  print('\n————————Better Luck Next Time————————\n')
376  break
377  elif pos2 == '6':
378  list1[1] = num2
379  list2[1] = int(num2)
380  string = ''.join(list1)
381  print(string[0:3])
382  print(string[3:6])
383  print(string[6:9])
384  a1 = list2[0]
385  a2 = list2[1]
386  a3 = list2[2]
387  a4 = list2[3]
388  a5 = list2[4]
389  a6 = list2[5]
```

```python
390 a7 = list2[6]
391 a8 = list2[7]
392 a9 = list2[8]
393 if (a1 + a2 + a3) == 15 or (a4 + a5 + a6) == 15 or (a7 + a8 + a9) == 15 or (a1 +
        a4 + a7) == 15 or (
394 a2 + a5 + a8) == 15 or (a3 + a6 + a9) == 15 or (a1 + a5 + a9) == 15 or (a3 + a5 +
        a7) == 15:
395 print('Player {} Wins'.format(c))
396 break
397 if (a1 + a2 + a3) >= 15 and (a4 + a5 + a6) >= 15 and (a7 + a8 + a9) >= 15 and (a1
        + a4 + a7) >= 15 and (a2 + a5 + a8) >= 15 and (a3 + a6 + a9) >= 15 and (a1 + a5
        + a9) >= 15 and (a3 + a5 + a7) >= 15:
398 print('\n————————Game Draw————————\n')
399 print('\n————————Better Luck Next Time————————\n')
400 break
401 elif pos2 == '7':
402 list1[1] = num2
403 list2[1] = int(num2)
404 string = ''.join(list1)
405 print(string[0:3])
406 print(string[3:6])
407 print(string[6:9])
408 a1 = list2[0]
409 a2 = list2[1]
410 a3 = list2[2]
411 a4 = list2[3]
412 a5 = list2[4]
413 a6 = list2[5]
414 a7 = list2[6]
415 a8 = list2[7]
416 a9 = list2[8]
417 if (a1 + a2 + a3) == 15 or (a4 + a5 + a6) == 15 or (a7 + a8 + a9) == 15 or (a1 +
        a4 + a7) == 15 or (
418 a2 + a5 + a8) == 15 or (a3 + a6 + a9) == 15 or (a1 + a5 + a9) == 15 or (a3 + a5 +
        a7) == 15:
419 print('Player {} Wins'.format(c))
420 break
421 if (a1 + a2 + a3) >= 15 and (a4 + a5 + a6) >= 15 and (a7 + a8 + a9) >= 15 and (a1
        + a4 + a7) >= 15 and (a2 + a5 + a8) >= 15 and (a3 + a6 + a9) >= 15 and (a1 + a5
        + a9) >= 15 and (a3 + a5 + a7) >= 15:
422 print('\n————————Game Draw————————\n')
423 print('\n————————Better Luck Next Time————————\n')
424 break
425 elif pos2 == '8':
426 list1[1] = num2
427 list2[1] = int(num2)
428 string = ''.join(list1)
429 print(string[0:3])
430 print(string[3:6])
431 print(string[6:9])
432 a1 = list2[0]
433 a2 = list2[1]
434 a3 = list2[2]
435 a4 = list2[3]
436 a5 = list2[4]
437 a6 = list2[5]
438 a7 = list2[6]
439 a8 = list2[7]
440 a9 = list2[8]
441 if (a1 + a2 + a3) == 15 or (a4 + a5 + a6) == 15 or (a7 + a8 + a9) == 15 or (a1 +
```

```python
        a4 + a7) == 15 or (
442     a2 + a5 + a8) == 15 or (a3 + a6 + a9) == 15 or (a1 + a5 + a9) == 15 or (a3 + a5 +
        a7) == 15:
443     print('Player {} Wins'.format(c))
444     break
445     if (a1 + a2 + a3) >= 15 and (a4 + a5 + a6) >= 15 and (a7 + a8 + a9) >= 15 and (a1
        + a4 + a7) >= 15 and (a2 + a5 + a8) >= 15 and (a3 + a6 + a9) >= 15 and (a1 + a5
        + a9) >= 15 and (a3 + a5 + a7) >= 15:
446     print('\n————Game Draw————\n')
447     print('\n————Better Luck Next Time————\n')
448     break
449     elif pos2 == '9':
450     list1[1] = num2
451     list2[1] = int(num2)
452     string = ''.join(list1)
453     print(string[0:3])
454     print(string[3:6])
455     print(string[6:9])
456     a1 = list2[0]
457     a2 = list2[1]
458     a3 = list2[2]
459     a4 = list2[3]
460     a5 = list2[4]
461     a6 = list2[5]
462     a7 = list2[6]
463     a8 = list2[7]
464     a9 = list2[8]
465     if (a1 + a2 + a3) == 15 or (a4 + a5 + a6) == 15 or (a7 + a8 + a9) == 15 or (a1 +
        a4 + a7) == 15 or (
466     a2 + a5 + a8) == 15 or (a3 + a6 + a9) == 15 or (a1 + a5 + a9) == 15 or (a3 + a5 +
        a7) == 15:
467     print('Player {} Wins'.format(c))
468     break
469     if (a1 + a2 + a3) >= 15 and (a4 + a5 + a6) >= 15 and (a7 + a8 + a9) >= 15 and (a1
        + a4 + a7) >= 15 and (a2 + a5 + a8) >= 15 and (a3 + a6 + a9) >= 15 and (a1 + a5
        + a9) >= 15 and (a3 + a5 + a7) >= 15:
470     print('\n————Game Draw————\n')
471     print('\n————Better Luck Next Time————\n')
472     break
473     else:
474     print('\n————Game Error————\n')
475     print('You entered wrong position')
476     print('\nEnter Again\n')
477     continue
478
479     x=x+1
480     else:
481     print('——————————————————————')
482     print('Thank You for Playing Game')
483     print('——————————————————————')
484     exit()
```

References

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