Q1

a = abba s = 0 end = len(a)

if s[0] == s[-1] a == a

return True

if start+1 == end-1 b == b

return True

if start+1 == end-1 b

if start > end:

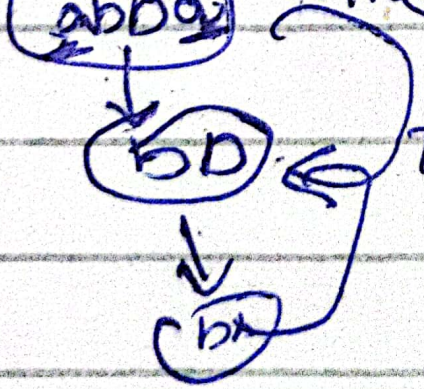
return # base case

if start == end:

return True

return recursive(string, s+1, end-1)

if start == end:

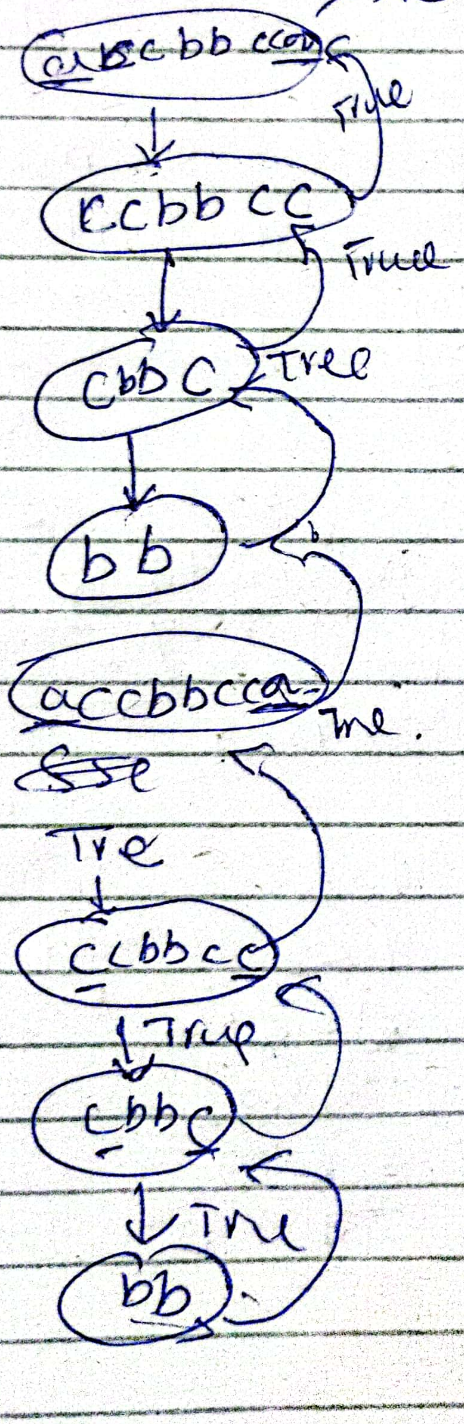


abbacca

a=accbbcca

a start end( )

return



abba

```
if s==e:
    return recursive call
        (string, s+1, e+1)
else
    return False
if s>e:
    return True
```

base case.

Q2

Muqadsa asdaqum

uqadsa asdaqu

qadsa asadq

adsa asda

dsa asd

sa as

a

string

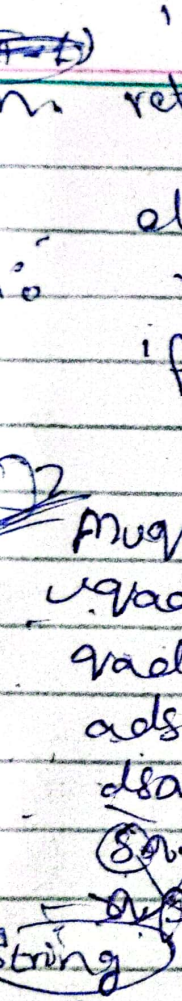
```
if len(string)==0:
    return string
recursive(string[1:])+string[0]
```

a:2

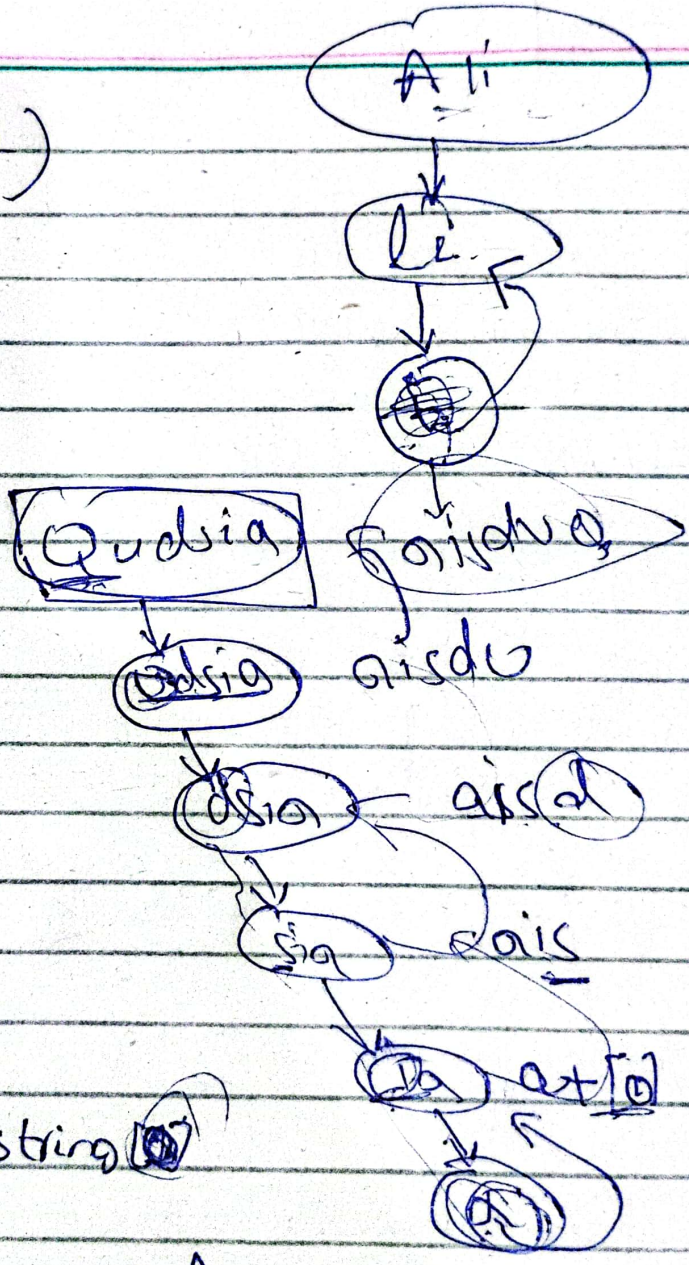
Qu

abba

```
if s==e:
return recursive call
        (string, s+1, e-1)
else
    return False
if s>e:
    return True
base case.
```



```
len(string) == 0:
    return string
recursive(string[1:]) + string[0]
```



= 1

returns

Q3

4	15	38	40

40

if s ≥ → . $\frac{4+2}{2} = 2$

mid = (s+e) // 2.

if arr[mid] = value:
    return True.

elif arr[mid] > value
    recursive call (arr, s, mid, value)
    15 > 40

else: 40 > 15
    recursive call (arr, mid+1, e, value)

0	1	2	3
4	15	38	40

key 40

$\frac{0+3}{2} = 1$.

15 < 40

38	40

$\frac{0+1}{2} = 0$.

38 < 40

40

$\frac{0+0}{2} = 0$.

40 = 40 ret

if s == e:
    return

if s > e:
    return False.

(5)

0	1	2	3
4	15	38	40

0	
4	15

15 > 5

$\frac{0+3}{2} = 1$

$\frac{0+1}{2} = 0$.

4 < 5

15

$\frac{0+0}{2} = 0$.

15

$\frac{0+0}{2} = 0$

15 > 5

0	1	2	3
4	15	38	40

40.

mid = $\frac{0+3}{2} = 1$

15 < 40

0	1
38	40

s = 2 e = 3

mid = $\frac{0+1}{2} = 0$

38 < 40

0
40

s = 3 e = 3

$\frac{0+0}{2} = 0$.

40 == 40
return T.

0	1	2	3
4	15	38	40.

5.

15 > 5

$\frac{0+3}{2} = 1$

0	1
4	15

s = 0
e = mid.

4 < 5

m = $\frac{0+1}{2}$ = 0.

0
15

s = 1 e = 1.

15 < 5

m = $\frac{0+0}{2}$ = 0

s = 2 e = 1.

if s > e:
return False.

0	1	2	3
4	15	38	40.

(5)

15 > 5

3//2 = (1)

(40)

s = 0 e = 0

4

=3.

0+0 // 2 = 0.

4 < 5

s = (1) e = 0

15 < 40

0	
38	40

3. (40)

$\frac{0+1}{2}$ = 0.

38 < 40

s =

0
40

0	1	2	3
4	15	38	40

40

$\frac{0+3}{2}$ = 1.

15 < 40

s = 2 e = 3

0	1
38	40

$\frac{0+1}{2}$ = 0.

38 < 40.

s = 1 e = 1.

0
40

$\frac{0+0}{2}$ = 0.

40 = 40
return True.