Project Euler programs 81 and 82 - Akash Gupta

This code showcases programming problems given in **project Euler website**. Problems number 81 and 82 have been attempted here.

```
A = []
A.append( [ 131, 673,234,103,18 ] )
A.append( [ 201, 96,342,965,150 ] )
A.append( [ 630, 803,746,422,111 ] )
A.append( [ 537, 699,497,121,956 ] )
A.append( [ 805, 732,524,37,331 ] )

B = []
for i in range(len(A)):
    B.append([None]*5)

def prettyPrint(B):
    for i in range(len(B)):
        for j in range(len(B)):
            print(B[i][j], end = "\t")
        print("")
    print("---")

B[4][4] = A[4][4]
n = 5

def update(n):
    for i in range(n):
        for j in range(n):
            if B[i][j] == None:
                if j == (n-1) and i < (n-1):
                    if B[i+1][j] != None:
                        B[i][j] = A[i][j] + B[i+1][j]
                elif i == (n-1) and j < (n-1):
                    if B[i][j+1] != None:
                        B[i][j] = A[i][j] + B[i][j+1]
                elif i == (n-1) and j == (n-1):
                    pass
                else:
                    if B[i][j+1] != None and B[i+1][j] != None:
                        B[i][j] = min(A[i][j] + B[i+1][j], A[i][j] + B[i][j+1])

for i in range(8):
    update(n)
    prettyPrint(B)
```

```
None    None    None    None    None
None    None    None    None    None
None    None    None    None    None
None    None    None    None    1287
None    None    None    368 331
---
None    None    None    None    None
None    None    None    None    None
None    None    None    None    1398
```

```
None    None    None    489 1287
None    None    892 368 331
---
None    None    None    None    None
None    None    None    None    1548
None    None    None    911 1398
None    None    986 489 1287
None    1624    892 368 331
---
None    None    None    None    1566
None    None    None    1876    1548
None    None    1657    911 1398
None    1685    986 489 1287
2429    1624    892 368 331
---
None    None    None    1669    1566
None    None    1999    1876    1548
None    2460    1657    911 1398
2222    1685    986 489 1287
2429    1624    892 368 331
---
None    None    1903    1669    1566
None    2095    1999    1876    1548
2852    2460    1657    911 1398
2222    1685    986 489 1287
2429    1624    892 368 331
---
None    2576    1903    1669    1566
2296    2095    1999    1876    1548
2852    2460    1657    911 1398
2222    1685    986 489 1287
2429    1624    892 368 331
---
2427    2576    1903    1669    1566
2296    2095    1999    1876    1548
2852    2460    1657    911 1398
2222    1685    986 489 1287
2429    1624    892 368 331
---
```

```python
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n = 5
tot = A[0][0]
print(tot)
i=0
j=0
def iterate(A, n, i, j, tot):
    if (i == 0 and j == 0):
```

```
        if A[i][j+1] < A[i+1][j]:
            tot = tot + A[i][j+1]
            j = j+1
        elif A[i+1][j] < A[i][j+1]:
            tot = tot + A[i+1][j]
            i = i+1
    elif (i < (n-1) and j < (n-1)) and (i != 0 or j != 0):
        if (A[i][j+1] < A[i+1][j]) and (A[i][j+1] < A[i-1][j]):
            tot = tot + A[i][j+1]
            j = j+1
        elif (A[i+1][j] < A[i][j+1]) and (A[i+1][j] < A[i-1][j]):
            tot = tot + A[i+1][j]
            i = i+1
        elif (A[i-1][j] < A[i][j+1]) and (A[i-1][j] < A[i+1][j]):
            tot = tot + A[i-1][j]
            i = i-1
    elif i == (n-1) and j < (n-1):
        tot = tot + A[i][j+1]
        j = j+1
    elif j == (n-1) and i < (n-1):
        return tot
    elif j == (n-1):
        return tot

    total = iterate(A, n, i, j, tot)
    return total

minsum = iterate(A, n, i, j, tot)
print(minsum)

ans = minsum - tot
print(ans)
```

```
131
1125
994
```