Started on	Thursday, 19 September 2024, 1:29 PM
State	Finished
Completed on	Thursday, 19 September 2024, 1:40 PM
Time taken	11 mins 39 secs
Grade	**80.00** out of 100.00

Question **1**

Correct

Mark 20.00 out of 20.00

Write a python program to implement Boyer Moore Algorithm with Good Suffix heuristic to find pattern in given text string.

For example:

Input	Result
ABAAABAACD ABA	pattern occurs at shift = 0 pattern occurs at shift = 4

Answer: (penalty regime: 0 %)

Reset answer

```
def preprocess_strong_suffix(shift, bpos, pat, m):
    ###############  Add your Code here ####################
    #Start here
    i = m
    j = m + 1
    bpos[i] = j
    while i > 0:
        while j <= m and pat[i - 1] != pat[j - 1]:
            if shift[j] == 0:
                shift[j] = j - i
            j = bpos[j]
        i -= 1
        j -= 1
        bpos[i] = j
    #End here
def preprocess_case2(shift, bpos, pat, m):
    j = bpos[0]
    for i in range(m + 1):
        if shift[i] == 0:
            shift[i] = j
        if i == j:
            j = bpos[j]
```

	Input	Expected	Got	
✔	ABAAABAACD ABA	pattern occurs at shift = 0 pattern occurs at shift = 4	pattern occurs at shift = 0 pattern occurs at shift = 4	✔
✔	SaveethaEngineering Saveetha veetha	pattern occurs at shift = 2 pattern occurs at shift = 22	pattern occurs at shift = 2 pattern occurs at shift = 22	✔

Passed all tests! ✔

Correct

Marks for this submission: 20.00/20.00.

Question **2**

Correct

Mark 20.00 out of 20.00

Create a python program to implement Hamiltonian circuit problem using Backtracking.

For example:

Result
Solution Exists: Following is one Hamiltonian Cycle 0 1 2 4 3 0

Answer: (penalty regime: 0 %)

Reset answer

```
class Graph():
    def __init__(self, vertices):
        self.graph = [[0 for column in range(vertices)]
                              for row in range(vertices)]
        self.V = vertices
    def isSafe(self, v, pos, path):
        if self.graph[ path[pos-1] ][v] == 0:
            return False
        for vertex in path:
            if vertex == v:
                return False

        return True
    def hamCycleUtil(self, path, pos):
        ######################Add your code here###################################
        #Start here
        if pos == self.V:
            if self.graph[ path[pos-1] ][ path[0] ] == 1:
                return True
            else:
                return False
        for v in range(1,self.V):
```

	Expected	Got	
✔	Solution Exists: Following is one Hamiltonian Cycle 0 1 2 4 3 0	Solution Exists: Following is one Hamiltonian Cycle 0 1 2 4 3 0	✔

Passed all tests! ✔

Correct

Marks for this submission: 20.00/20.00.

Question **3**

Not answered

Mark 0.00 out of 20.00

Write a short recursive Python function that finds the minimum and maximum values in a sequence without using any loops.

For example:

Input	Result
4 51 20 31 47	51
4 12 20 5 6	20

Answer: (penalty regime: 0 %)

```
1
```

Question **4**

Correct

Mark 20.00 out of 20.00

Write a python program to implement KMP (Knuth Morris Pratt).

For example:

Input	Result
ABABDABACDABABCABAB ABABCABAB	Found pattern at index 10

Answer: (penalty regime: 0 %)

Reset answer

```
def KMPSearch(pat, txt):
############## Add your code here #################
    #Start here
    M = len(pat)
    N = len(txt)
    lps = [0]*M
    j = 0
    computeLPSArray(pat, M, lps)
    i = 0
    while (N - i) >= (M - j):
        if pat[j] == txt[i]:
            i += 1
            j += 1
        if j == M:
            print ("Found pattern at index " + str(i-j))
            j = lps[j-1]
        elif i < N and pat[j] != txt[i]:
            if j != 0:
                j = lps[j-1]
            else:
                i += 1
    #End here
```

	Input	Expected	Got	
✔	ABABDABACDABABCABAB ABABCABAB	Found pattern at index 10	Found pattern at index 10	✔
✔	SAVEETHAENGINEERING VEETHA	Found pattern at index 2	Found pattern at index 2	✔

Passed all tests! ✔

Correct

Marks for this submission: 20.00/20.00.

Question **5**

Correct

Mark 20.00 out of 20.00

Write a python program to implement knight tour problem

For example:

Input	Result
5 5	[1, 12, 25, 18, 3] [22, 17, 2, 13, 24] [11, 8, 23, 4, 19] [16, 21, 6, 9, 14] [7, 10, 15, 20, 5] [(0, 0), (1, 2), (0, 4), (2, 3), (4, 4), (3, 2), (4, 0), (2, 1), (3, 3), (4, 1), (2, 0), (0, 1), (1, 3), (3, 4), (4, 2), (3, 0), (1, 1), (0, 3), (2, 4), (4, 3), (3, 1), (1, 0), (2, 2), (1, 4), (0, 2)] Done!

Answer: (penalty regime: 0 %)

Reset answer

```
import sys
class KnightsTour:
    def __init__(self, width, height):
        self.w = width
        self.h = height
        self.board = []
        self.generate_board()

    def generate_board(self):
        for i in range(self.h):
            self.board.append([0]*self.w)

    def print_board(self):

        for elem in self.board:
            print (elem)

    def generate_legal_moves(self, cur_pos):
        possible_pos = []
        move_offsets = [(1, 2), (1, -2), (-1, 2), (-1, -2),
                        (2, 1), (2, -1), (-2, 1), (-2, -1)]
        ################ Add your code here ################################
```

	Input	Expected	Got	
✔	5 5	[1, 12, 25, 18, 3] [22, 17, 2, 13, 24] [11, 8, 23, 4, 19] [16, 21, 6, 9, 14] [7, 10, 15, 20, 5] [(0, 0), (1, 2), (0, 4), (2, 3), (4, 4), (3, 2), (4, 0), (2, 1), (3, 3), (4, 1), (2, 0), (0, 1), (1, 3), (3, 4), (4, 2), (3, 0), (1, 1), (0, 3), (2, 4), (4, 3), (3, 1), (1, 0), (2, 2), (1, 4), (0, 2)] Done!	[1, 12, 25, 18, 3] [22, 17, 2, 13, 24] [11, 8, 23, 4, 19] [16, 21, 6, 9, 14] [7, 10, 15, 20, 5] [(0, 0), (1, 2), (0, 4), (2, 3), (4, 4), (3, 2), (4, 0), (2, 1), (3, 3), (4, 1), (2, 0), (0, 1), (1, 3), (3, 4), (4, 2), (3, 0), (1, 1), (0, 3), (2, 4), (4, 3), (3, 1), (1, 0), (2, 2), (1, 4), (0, 2)] Done!	✔

	Input	Expected	Got	
✔	6 6	[1, 32, 9, 18, 3, 34] [10, 19, 2, 33, 26, 17] [31, 8, 25, 16, 35, 4] [20, 11, 36, 27, 24, 15] [7, 30, 13, 22, 5, 28] [12, 21, 6, 29, 14, 23] [(0, 0), (1, 2), (0, 4), (2, 5), (4, 4), (5, 2), (4, 0), (2, 1), (0, 2), (1, 0), (3, 1), (5, 0), (4, 2), (5, 4), (3, 5), (2, 3), (1, 5), (0, 3), (1, 1), (3, 0), (5, 1), (4, 3), (5, 5), (3, 4), (2, 2), (1, 4), (3, 3), (4, 5), (5, 3), (4, 1), (2, 0), (0, 1), (1, 3), (0, 5), (2, 4), (3, 2)] Done!	[1, 32, 9, 18, 3, 34] [10, 19, 2, 33, 26, 17] [31, 8, 25, 16, 35, 4] [20, 11, 36, 27, 24, 15] [7, 30, 13, 22, 5, 28] [12, 21, 6, 29, 14, 23] [(0, 0), (1, 2), (0, 4), (2, 5), (4, 4), (5, 2), (4, 0), (2, 1), (0, 2), (1, 0), (3, 1), (5, 0), (4, 2), (5, 4), (3, 5), (2, 3), (1, 5), (0, 3), (1, 1), (3, 0), (5, 1), (4, 3), (5, 5), (3, 4), (2, 2), (1, 4), (3, 3), (4, 5), (5, 3), (4, 1), (2, 0), (0, 1), (1, 3), (0, 5), (2, 4), (3, 2)] Done!	✔

Passed all tests! ✔

Correct

Marks for this submission: 20.00/20.00.