

```

1  '''
2      Cell.py
3
4      The Cell class is used to store info about each matrix cell. This includes
5      both current edit distance value and backtrace information. Utilized by
6      the Matrix class.
7  '''
8
9  from .Util import BTFLAG_UP, BTFLAG_LEFT, BTFLAG_DIAG
10
11  class Cell(object):
12      '''
13      The Cell class is used to store info about each matrix cell. This includes
14      both current edit distance value and backtrace information. Utilized by
15      the Matrix class.
16      '''
17
18      def __init__(self):
19          self.distance = 0          # Distance value of the cell
20
21          self.backtrace_flags = 0   # Bitflag value used to store backtrace info
22
23          self.equivalent = False    # Boolean for when diagonal flag is set:
24                                     # If the two letters being compared are
25                                     # equivalent, this flag is set. If two
26                                     # letters are not equivalent, a
27                                     # substitution, this flag is false.
28
29      def _getflag(self, flag):
30          '''
31          Generalized function to get backtrace_flags info - internal use only.
32          '''
33          return bool(self.backtrace_flags & flag)
34
35      def _setflag(self, flag, value):
36          '''
37          Generalized function to set backtrace_flags info - internal use only.
38          '''
39          if value == True:
40              self.backtrace_flags |= flag
41          elif value == False:
42              self.backtrace_flags &= ~flag
43          else:
44              raise ValueError("Flag can only be true or false")
45
46      @property
47      def up(self):
48          '''
49          Returns the backtrace up flag
50          '''
51          return self._getflag(BTFLAG_UP)
52
53      @property
54      def left(self):
55          '''
56          Returns the backtrace left flag
57          '''
58          return self._getflag(BTFLAG_LEFT)
59

```

```
60     @property
61     def diag(self):
62         '''
63         Returns the backtrace diagonal flag
64         '''
65         return self._getflag(BTFLAG_DIAG)
66
67     @up.setter
68     def up(self, value):
69         '''
70         Set the backtrace up flag
71         '''
72         self._setflag(BTFLAG_UP, value)
73
74     @left.setter
75     def left(self, value):
76         '''
77         Set the backtrace left flag
78         '''
79         self._setflag(BTFLAG_LEFT, value)
80
81     @diag.setter
82     def diag(self, value):
83         '''
84         Set the backtrace diagonal flag
85         '''
86         self._setflag(BTFLAG_DIAG, value)
```