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1  """
2  CS241 Homework 06
3  Written by Chad Macbeth
4  """
5
6  from collections import deque
7
8  ### Represents a student with their tutoring needs
9  class Student:
10
11     ### Initialize student object
12     def __init__(self):
13         self.name = ""
14         self.course = ""
15
16     ### Prompt for student name and course needing help
17     def prompt(self):
18         self.name = input("Student Name: ")
19         self.course = input("Course Name: ")
20
21     ### Display student information
22     def display(self):
23         print("{} - {}".format(self.name, self.course))
24
25     ### Represents a Help System which implements a queue of
26     ### students needing help
27     class HelpSystem:
28
29         ### Initialize the HelpSystem object with an empty queue
30         def __init__(self):
31             self.waiting_list = deque()
32
33         ### Determine if there are any students in the queue.
34         def is_student_waiting(self):
35             return (len(self.waiting_list) > 0)
36
37         ### Add a student to the queue
38         def add_to_waiting_list(self, student):
39             self.waiting_list.append(student)
40
41         ### Remove the next student from the queue and display their information.
42         ### If the queue is empty, then display a message.
43         def help_next_student(self):
44             if self.is_student_waiting():
45                 student = self.waiting_list.popleft()
46                 print("Now helping:")
47                 student.display()
48                 if self.is_student_waiting():
49                     print("Get ready:")
50                     student = self.waiting_list[0]
51                     student.display()
52             else:
53                 print("No one to help.")
54
55     ### Provide menu to use the HelpSystem
56     def main():
57         selection = 0
58         help_system = HelpSystem()
59         while (selection != 3):
60             print()
61             print("Options:")
62             print("1. Add a new student")
63             print("2. Help next student")
64             print("3. Quit")
65             selection = int(input("Enter selection: "))
66             print()

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67         if selection == 1:
68             student = Student()
69             student.prompt()
70             help_system.add_to_waiting_list(student)
71         elif selection == 2:
72             help_system.help_next_student()
73     print("Goodbye")
74
75 if __name__ == "__main__":
76     main()
77
```