In this assignment you will have the opportunity to exercise your knowledge about DO WHILE ... END DO and DO ... END DO loops to write Fortran program segments.

Problems:
1. Write a Fortran code segment to calculate the following sum:
   \[ \text{sum} = 1 + 4 + 7 + 10 + \ldots + 1108 + 1111 \]

2. Write a Fortran code segment to perform the following infinite sum:
   \[ \text{sum} = 1 + \frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{16} + \frac{1}{32} + \ldots \]
   The sum is to be performed until the last term in the series to be added is less than 0.00001.

3. Write a Fortran code segment to calculate the following sum:
   \[ \text{sum} = -1 + 3 - 5 + 7 - 9 + \ldots -999 + 1001 \]

4. Write a Fortran code segment to add numbers as they are entered one at a time from the keyboard. The program segment should continue adding a number until it receives a number less than 1 or a number greater than 100 from the keyboard. Particularly, when it receives a number less than 1 or greater than 100, it should stop adding.

5. Write a Fortran code segment to add all numbers from 1 to 1000 except the numbers that are divisible by 7.

Submission Requirement:
You are not required to write a complete program for each of the problems described above -- only you have to write a small loop with some variables and conditions that would implement the solution of the problem. Turn in a few typewritten or computer-printed pages with your solutions. The due date for the assignment is March 30, 1999. The late penalty is 20% for each day.