```c
// example 1: calculate and print test average for a class.
// program: gradeAverage_num.c
#include <stdio.h>

    int main()
   {
      FILE *inFile;

      int grade;         // test grade
      int sumGrade=0;    // grade accumulator...initialized
      int numStudent,n; // number of students

      inFile = fopen("grades.txt","r");
      if ( inFile == NULL )
         printf( "Error opening input file." );
      else
      {
         fscanf( inFile,"%d",&numStudent );
         for ( n=0; n<numStudent; n++ )
         {
            fscanf( inFile,"%d",&grade );
            sumGrade += grade;
         }
         printf( "Average grade = %.1f\n", (double)sumGrade/numStudent );
      }
      fclose(inFile);
      return 0;
   }

/*    grades.txt
   8
   90
   100
   85
   75
   88
   69
   45
   99

    Average grade = 81.4
*/
```

```c
// example 2: calculate and print test average for a class.
// program: gradeAverage_sen.c
#include <stdio.h>

    int main()
   {
      FILE *inFile;

      int grade;        // test grade
      int sumGrade=0;   // grade accumulator...initialized
      int numStudent=0; // number of students

      inFile = fopen("grades.txt","r");
      if ( inFile == NULL )
         printf( "Error opening input file." );
      else
      {
         fscanf( inFile,"%d",&grade );
         while ( grade >= 0 )
         {
            sumGrade += grade;
            numStudent++;
            fscanf( inFile,"%d",&grade );
         }
         printf( "Average grade = %.1f\n", (double)sumGrade/numStudent );
      }
      fclose(inFile);
      return 0;
   }

/*    grades.txt
   90
   100
   85
   75
   88
   69
   45
   99
   -99

    Average grade = 81.4
*/
```

```c
// example 3: calculate and print test average for a class.
// program: gradeAverage_sen.c
#include <stdio.h>
#define SENTINEL -99

    int main()
   {
      FILE *inFile;

      int grade;         // test grade
      int sumGrade=0;    // grade accumulator...initialized
      int numStudent=0; // number of students

      inFile = fopen("grades.txt","r");
      if ( inFile == NULL )
         printf( "Error opening input file." );
      else
      {
         fscanf( inFile,"%d",&grade );
         while ( grade != SENTINEL )
         {
            sumGrade += grade;
            numStudent++;
            fscanf( inFile,"%d",&grade );
         }
         printf( "Average grade = %.1f\n", (double)sumGrade/numStudent );
      }
      fclose(inFile);
      return 0;
   }

/*    grades.txt
   90
   100
   85
   75
   88
   69
   45
   99
   -99

    Average grade = 81.4
*/
```

```c
// example 4: calculate and print test average for a class.
// program: gradeAverage_EOF3.c
#include <stdio.h>

    int main()
   {
      FILE *inFile;

      int gr1, gr2, gr3;// test grade
      int sumGrade1=0, sumGrade2=0, sumGrade3=0;
                        // grade accumulator...initialized
      int numStudent=0; // number of students

      inFile = fopen("grades3.txt","r");
      if ( inFile == NULL )
         printf( "Error opening input file." );
      else
      {
         while ( ( fscanf( inFile,"%d %d %d",&gr1,&gr2,&gr3 ) ) == 3 )
         {
            sumGrade1 += gr1;
            sumGrade2 += gr2;
            sumGrade3 += gr3;

            numStudent++;
         }
         printf( "Average grade test 1 = %.1f\n", (double)sumGrade1/numStudent );
         printf( "Average grade test 2 = %.1f\n", (double)sumGrade2/numStudent );
         printf( "Average grade test 3 = %.1f\n", (double)sumGrade3/numStudent );
      }
      fclose(inFile);
      return 0;
   }

   /*    grades.txt
90   45  58
100  86  98
85   23  76
75  100  65
88   58  89
69   77 100
45   84  96
99   54  99
Average grade test 1 = 81.4
Average grade test 2 = 65.9
Average grade test 3 = 85.1
*/
```