27.02.2006



Computer Engineering Department

Object Oriented Programming 1st Homework Due Date: Mon 13 March 2006

- 1. Implement a rational number class: **Rational (Fraction)**.
 - Include member functions for

İ.T.Ü.

- a) Initialization (Constructor). Parameters are numerator and denominator as integers. Default rational number is 1. Rational numbers must be kept always in **reduced form**.
- b) get (returns the value of the number, output float)
- c) addition (+) operator (input Rational, output Rational)
- d) greater than (>) operator (input Rational, output Boolean)

Rational numbers must be kept always in reduced form.

2. Implement an array class, **Vector**. Members of the vector will be rational numbers (Rational). Hint: Use a pointer to Rational.

Implement a constructor, which gets the number of elements and other necessary initial values from user via keyboard, a copy constructor, destructor and member functions to calculate:

- a. The greatest element of the vector (output Rational).
- b. The sum of the elements of the vector (output Rational).
- c. The average of the elements of the vector (output float).
- d. The addition operator (+) that gives the sum of two vectors (output Vector).
- 3. Include a main program to test your classes. In your program create objects of Vector and design a simple text-based menu that gives the user the opportunity of sending messages to the objects.

SUBMISSION:

- Read **C++ Programming Standards**, which can be found on the course web page. Write your program according to these rules.
- Do not forget to write your name, your number and the compiler that you used, to the header of the program file.
- The name of the source file should be your number.
- Late submitted homeworks are not accepted.
- Cheating will not be tolerated. If cheating is discovered, all responsible students will be punished. Punishment for cheating is a score of -100 points.

It is allowed to discuss how to solve a problem with your classmates, however, **homeworks** are not group homeworks. All actual programming should be an independent effort.