

# CMPE 462 Assignment 1

(Haskell)

**Due: 21 October 2019 (Monday), beginning of the lab session**

**To be done in groups of two. Pick your partner!**

1. Define a function *count\_odds* that produces the number of odds in a list of numbers. For example, *count\_odds [1,2,3,4,7,8]* should return 3.
2. Write a function *remove\_last\_two* that removes the last two elements in a list. If the list contains two or less elements, then it should return the list unchanged. For example, *remove\_last [1,2,3,4,5,6]* should return *[1,2,3,4]*.
3. Using library functions, define a function *halve :: [a] → ([a], [a])* that splits an even-length list into two halves. For example, *halve [1, 2, 3, 4, 5, 6]* should return *([1, 2, 3], [4, 5, 6])*.
4. Write a function *min\_max* that takes a list of numbers and returns the minimum, as well as the maximum element in the list as a pair. For example, *min\_max [4,3,6,5,9,10,8]* should return *(3,10)* as the answer.
5. Redefine the function  
`mult x y z = x * y * z`  
using lambda expressions.
6. Write a function *primes\_before* that takes a natural number *n* and returns in a list the prime numbers that are smaller than *n*. For example, *primes\_before 10* should return *[2,3,5,7]*.
7. Write a function *sum\_average\_count* that takes a list of numbers and returns as a triple the sum, average and count of the numbers. For example, *sum\_average\_count [2,4,12]* should return *(18,6,3)*.
8. Write a function *to\_list* that takes a tuple of three components and returns the list of those components. For example, *to\_list (3,4,5)* should return *[3,4,5]*.

What to hand in: Your printed functions, together with two calls to each function. Make sure your names, student numbers, as well as the course name, semester, and assignment number appear on the first page.