

ESc101N: Fundamentals of computing(Lab Session 10)

October 20, 2009

Instructions

1. Please read the question carefully and write the program accordingly
2. Make sure that the TA has graded you program
3. The marks are distributed as follows. You get 60% of the marks if the basic algorithm is current, 20% if you manage to compile and execute and 20% for writing the code cleanly, i.e. using proper variable names, intending and making the code more readable.

Question 1. Recall the definition of lists that we studied in the class.

```
typedef struct Cons Cons;
typedef Cons * List;
struct Cons {
    int datum;
    List next;
};
```

Write a set of library functions for the following operations on lists.

- (a) (5 marks) Functions `List readList()` and `void printList(List)` to read and write lists. As a hint for `readList` recall that the function `scanf` has type `int scanf(char *fmt,...)` where the return type is the number of variables that are read successfully. For example if you have `scanf("%d", &x)` and a non integral value is entered or you pressed `Control-D` then `scanf` returns 0. If you gave a valid integer as input then `scanf` will return 1.
- (b) (5 marks) The function `int prod(List)` which finds the product of all the elements of the list.

Sample output is given below

```
Script started on Tue 20 Oct 2009 11:22:04 IST
enter the list and terminate it with Control-D:
1
2
3
4
the product of the list [1,2,3,4]is 24
```

```
Script done on Tue 20 Oct 2009 11:22:10 IST
```