

CSE108 – Computer Programming Laboratory

Lab #8

Date: Monday April 01, 2019

Handin: A student with number 20180000001 should hand in three separate files named 20180000001_par1.c, 20180000001_par2.c, 20180000001_par3.c, etc. for this lab.

Part 1. [20pts] Write a recursive function that prints a given string in reverse. The function will read the entire line from the user and will print it in reverse. You are not allowed to store the input string in a string variable.

```
void reverse_print(char *str)
```

Input string: c-lab

Output print: bal-c

Part 2. [20pts] Write a function that calculates the power operation using only multiplications as a recursive function.

```
int recursive_pow(int base, int exponent)
```

base=0, exponent=0, result=-1

base=4, exponent=0, result=1

base=3, exponent=1, result=3

base=2, exponent=3, result=8

Part 3. [20pts] Write a recursive function that computes the arithmetic sequence that defined below.

$$F(1) = 1$$

$$F(n) = 2 * F(\text{ceil}(n/2)) + 1 \text{ where } n > 1$$

$$F(2) = 2 * F(1) + 1 = 3$$

$$F(3) = 2 * F(1) + 1 = 3$$

$$F(4) = 2 * F(2) + 1 = 7$$

Part 4. [20pts] Write a recursive function that returns the maximum value in an array.

Part 5. [20pts] Palindrome is the word whose reverse is the same as itself. For instance, neden, küçük, etc. Write a recursive function which checks if a string is palindrome or not. The function returns 1 if the string is palindrome. Otherwise, it returns 0.

Input word: kavak

Result: kavak is palindrome

Input word: abcdeedcba

Result: abcdeedcba is palindrome

Input word: programming

Result: programming is not palindrome