

COP 3502-4

Lab Assignment # 2

Consider the following structures and the main function shown below:

```
#include <string.h>
#include <stdio.h>
#include <stdlib.h>
```

```
typedef struct StringType {
    char *string;
    int length;
} StringType;
```

```
typedef struct Employee {
    StringType *ename;
    double salary;
} Employee;
```

```
Employee* createEmployees(char names[][50], double *salaries, int empCount) {
}
```

```
int main() {
    const int EMPLOYEE_COUNT = 4;
    //array of employees' names
    char nameList[][50] = {"Bill", "Mary", "Kevin", "Denise"};
    //array of salaries, where 15.80 is the salary of Bill, 13.50 is
    // the salary of Mary, etc.
    double salaries[] = {15.80, 13.5, 20.9, 12.99};
    Employee *pEmployees = createEmployees(nameList, salaries, EMPLOYEE_COUNT);
    // Print Employees
    int e = 0;
    Employee *pEmployee = pEmployees;
    printf("\tEMPLOYEE NAME\t\tSALARY\n");
    for (e=0;e<EMPLOYEE_COUNT;++e) {
        printf("\t%s\t\t%.2lf\n",pEmployee->ename->string,pEmployee->salary);
        pEmployee++;
    }

    // Deallocate memory
    pEmployee = pEmployees;
    for (e=0;e<EMPLOYEE_COUNT;++e) {
```

```

        free(pEmployee->ename->string);
        pEmployee->ename->string = NULL;
        free(pEmployee->ename);
        pEmployee->ename = NULL;
        pEmployee++;
    }
    free(pEmployees);
    pEmployees = NULL;

    return 0;
}

```

Write a function `createEmployees()` that takes the list of employees' names, list of their salaries, and length of the list (`empCount`) as the parameters, and returns a pointer to a dynamically allocated array of `Employee` storing the relevant information for `empCount` employees.

The function dynamically allocates memory for `empCount` number of employees and assigns the name and salaries for each of them from the input parameters. During this process, the names are stored in the dynamically allocated memory of `StringType`, and also make sure you assign the length of the name appropriately. Your code should use exact amount of memory needed to store the corresponding names. You may assume no name is longer than 49 characters.

`Employee* createEmployees(char names[][50], double *salaries, int empCount)`