

Introduction to Computer Science Lab II

CIEE102, Spring 2020

Lab 6

- 1 Run the following C program to see what it does.

```
#include <stdio.h>
int main ()
{
    enum seasons {spring, summer, fall, winter};
    typedef seasons SEASON;
    SEASON s;
    for ( s = spring; s <= winter; s++)
    {
        switch (s)
        {
            case spring: printf("春桃\n");
                        break;
            case summer: printf("夏荷\n");
                        break;
            case fall: printf("秋菊\n");
                       break;
            case winter: printf("冬梅\n");
                        break;
            default: break;
        }
    }
}
```

- 2 Left shifting an unsigned integer by 1 bit is equivalent to multiplying the value 2. Write a C function that takes two integer arguments *number* and *pow* and calculates $number * 2^{pow}$
- 3 The left shift operator can be used to pack two character values into an unsigned short variable. Write a C program that inputs two characters from the keyboard and passes them to function “packCharacters”. To pack two characters into an unsigned short variable, assign the first character to the unsigned short variable, shift the unsigned short variable left by 8 bits and

combine the result with the second character using the bitwise inclusive OR operator.

- 4 Given the following structure and variable definition,

```
struct customer {  
    char lastname[15];  
    char firstname[15];  
    unsigned int customerNumber;  
    struct {  
        char phoneNumber[11];  
        char address[50];  
        char city[15];  
        char state[3];  
        char zipCode[6];  
    } personal;  
} customerRecord, *customerPtr;  
customerPtr = &customerRecord;
```

Write a C program to do the following tasks.

- Set the lastname of customerRecord to “Smith”
- Set the firstname of the structure pointed to by customerPtr to “Andy”
- Set the customerNumber of customerRecord to 201
- Set the phoneNumber of the structure pointed to by customerPtr to “09003838”
- Set the address of customerRecord to “101 Pretty Way, Bigcity, SmallState”
- Set the zipCode of the structure pointed to by customerPtr to 99999