

KING SAUD UNIVERSITY COLLEGE OF COMPUTER AND INFORMATION SCIENCES COMPUTER SCIENCE DEPARTMENT		
CSC215	Lab 4 Functions & Program Structure	2 nd Semester 1436-1437

Q1: Write a program that calculate a bill for customer purchases in a store, in this store, there are 1 to 100 items and products, these items are organized in a way that items with IDs less than 50 are on sale (10%), and items with IDs between 50 and less than 90 are on sale (20%), the rest items are on sale = (30%).

Your program reads item IDs, till the end of purchases. At the end of your program, the total sale prices is shown.

Your program has a function called **salePrice** that receives the itemID and its' price, it returns the current sale price for the current item, and it prints the number of items purchased so far. Both itemID and price are of type double.

Hint: You may need to declare a static variable in salePrice Function!

Name your file using the following naming convention:

- "Lab4Q1_YourFirstName_YourLastName.c"
- Don't forget to move to your own directory
- Compile your code and execute it.
- Show the program to your lab instructor before you leave.

Model Answer:

```
#include<stdio.h>

double salePrice(double price, int itemID){
    static int numberOfItems=0;
    double salePrice=0;
    double current_sale=0;

    if(itemID<50)
        current_sale=10;

    else if (itemID>=50 && itemID<90)
        current_sale=20;

    else
```

```

        current_sale=30;

    salePrice= price-((current_sale/100.0)*price);
    numberOfItems++;
    printf(" The sale Price for this item is %lf \n",salePrice);
    printf(" number of items so far is %d \n",numberOfItems);
    return salePrice;
}

int main(){
    int id;
    double price,sum=0;
    do
    {
        printf("Enter ItemID or zero to End\n");
        scanf("%i",&id);

        if(id<=0)
            break;

        printf("Enter price for this item\n");
        scanf("%lf",&price);
        sum+=salePrice(price, id);

    }while(id!=0);
    printf("Total price is = %lf", sum);
    return 0;
}

```

Q2: Write a program that calculate the sum of digits of a number. Your program has a **recursive function** called **Sum** that receives the number and return the sum. Both the number and the sum are of type int.

Name your file using the following naming convention:

- "Lab4Q2_YourFirstName_YourLastName.c"
- Don't forget to move to your own directory
- Compile your code and execute it.
- Show the program to your lab instructor before you leave.

Model Answer:

```
#include<stdio.h>

int r,s;
int sum(int num) {
if(num) {
    r=num%10;
    s=s+r;
    sum(num/10);
}
else
    return s;
}

int main() {
    int number,result;

    printf("\nEnter a number: ");
    scanf("%d",&number);
    result=sum(number);
    printf("Sum of the digits of %d is: %d",number,result);
    return 0;
}
```