Assignment5

Question1

Description

Write a function named distance() that accepts the rectangle coordinates of two points x1,y1 and x2,y2 and calculates and returns the distance between two points.Make sure your function is called by main() and correctly returnd a value to main().

Code

```
#include <stdio.h>
#include <math.h>
void calculateDistance() {
    double ax, ay, bx, by;
    printf("Please input the coordinate of the first point: ");
    scanf("%lf%lf", &ax, &ay);
    printf("Please input the coordinate of the second point: ");
    scanf("%lf%lf", &bx, &by);
    printf("The distance between two points is %.2f", sqrt(pow(ax-bx,
2)+pow(ay-by, 2)));
}

int main() {
    calculateDistance();
    return 0;
}
```

Input

The first point:(2,2)

The second point:(3,3)

Output

```
Please input the coordinate of the first point: 2 2
Please input the coordinate of the second point: 3 3
The distance between two points is 1.41
```

Question2

Description

Write a function named winPercent() that accepts the number of wins and losses that a team achieves and returns its winning percentage. Make sue your function is called by main() and correctly returnd a value to main().

Code

```c
#include <stdio.h>
#include <math.h>
void winPercent() {
    int win, lose;
    while(1) {
        printf("Please input the number of winning: ");
        scanf("%d", &win);
        printf("Please input the number of losing: ");
        scanf("%d", &lose);
        if(win < 0 || lose < 0 || win+lose <= 0) {
            printf("Input wrong. Try again. \n");
        } else break;
    }
    printf("The winning percentage is %.2f.", 100.0*win/(win+lose));
}

int main() {
    winPercent();
    return 0;
}
```

Input

The number of winning is:1

The number of losing is:100

Output

```
Please input the number of winning: 1
Please input the number of losing: 100
The winning percentage is 0.99 percent
```

Question3

Description

Write a C program to create a HI-LO game. In this game the computer produces a random integer between 1 and 100 and provides the user with seven tries to guess the generated number. If the user guesses the correct number the message "Hooray,you have win ! " should be displayed. After each incorrect guess,the computer should display the message,"Wrong number, try again" and indicates whether the guess was too high or too low and display the number of guesses left. After seven incorrect guesses,the computer should display the message,"Sorry,you lose" and correct number.

Code

```
#include <stdio.h>
#include <math.h>
#include <time.h>

int createRand() {
    srand(time(NULL));
    return rand()%100;
}
void guessNumber() {
    int i;
    int res = createRand();
    int now;
    for(i = 1; i <= 7; i++) {
        printf("Please input your guess: ");
        scanf("%d", &now);
        if(now > res && i != 7) {
            printf("Wrong number, try again. Your input is higher. %d
chance(s) left.\n", 7-i);
        }
        else if(now > res && i == 7) {
            printf("Sorry, you lose. Your input is higher.\n");
        }
        else if(now < res && i != 7) {
            printf("Wrong number, try again. Your input is lower. %d chance(s)
left.\n", 7-i);
        }
        else if(now < res && i == 7) {
            printf("Sorry, you lose. Your input is lower.\n");
        } else {
            printf("Hooray, you have won!\n");
            break;
        }
    }

}

int main() {
    char choice;
    int ok = 1;
    while(ok) {
```

```
        guessNumber();
        while(1) {
            fflush(stdin);
            printf("Would you like to play again (y/n)?");
            scanf("%c", &choice);
            if(choice == 'n' || choice == 'N') {
                ok = 0;
                printf("See you later!");
                break;
            }
            else if(choice != 'y' || choice == 'Y') {
                printf("Wrong input. Try again.\n");
            }
            else break;
        }
    }
    return 0;
}
```

Input

number:1,2,3,4,5,6,7

Output

```
Please input your guess: 1
Wrong number, try again. Your input is lower. 6 chance(s) left.
Please input your guess: 2
Wrong number, try again. Your input is lower. 5 chance(s) left.
Please input your guess: 3
Wrong number, try again. Your input is lower. 4 chance(s) left.
Please input your guess: 4
Wrong number, try again. Your input is lower. 3 chance(s) left.
Please input your guess: 5
Wrong number, try again. Your input is lower. 2 chance(s) left.
Please input your guess: 6
Wrong number, try again. Your input is lower. 1 chance(s) left.
Please input your guess: 7
Sorry, you lose. Your input is lower.
Would you like to play again (y/n)?n
See you later!
```

Question4

Description

Write a function named date() that accepts an integer of form yyyymmdd,such as 20070421; determines the corresponding month,day,and year;and returns these three values to the calling function.For example,if date() is called using the statement date(20120411,&month,&day,&year).the number 4 should be return in month,the number 11 in day,and the number 2012 in year.

Code

```
#include<stdio.h>

int date(int n,int *monthaddr,int *dayaddr,int *yearaddr)
{
    *yearaddr=n/10000;
    *monthaddr=n/100-*yearaddr*100;
    *dayaddr=n-*yearaddr*10000-*monthaddr*100;
}

int main()
{

    int n,month,day,year;

    printf("enter a date like 20070421: \n");
    scanf("%d",&n);

    date(n,&month,&day,&year);
    printf("year is %d\nmonth is %d\nday is %d\n",year,month,day);

    return 0;
}
```

Input

date:20120421

Output

```
enter a date like 20070421:
20120421
year is 2012
month is 4
day is 21
```