

Assignment3

Question1

Description

Write a C program to convert a Celsius degree to fahrenheit. The program should request the starting Celsius value, the number of conversions to be made, and the increment between Celsius values. The display should have appropriate heading and list Celsius value and the corresponding Fahrenheit value. Use the relationship.

Code

```
#include <stdio.h>
int main() {
    float start, num, increment;
    int i, j, k;

    printf("Please input the starting Celsius value: ");
    scanf("%f", &start);
    printf("Please input the number of conversions to be made: ");
    scanf("%f", &num);
    printf("Please input the increment between Celsius values: ");
    scanf("%f", &increment);
    printf("The list of Celsius values is: \nCelsius\tFahrenheit\n");

    for(i = 0; i < num; i++) {
        printf("%.2f\t%.2f\n", start, (9.0 / 5.0) * start + 32.0);
        start += increment;
    }
    return 0;
}
```

Input

start:30

number of conversions:5

increment:5

Output

Please input the starting Celsius value: 30
Please input the number of conversions to be made: 5
Please input the increment between Celsius values: 5
The list of Celsius values is:
Celsius Fahrenheit
30.00 86.00
35.00 95.00
40.00 104.00
45.00 113.00
50.00 122.00

Question2

Question

Write a C program that selects and displays the maximum value of ten numbers that are to be entered when the program is executed. (Hint: Use a for loop with both a scanf() and if statement internal to the loop.

Code

```
#include <stdio.h>
int main() {
    float num, max = 0;
    int i, ok;
    printf("Please input ten numbers: \n");
    for(i = 0; i < 10; i++) {
flag: ok = scanf("%f", &num);
        if(ok == 0 || (num - (int)(num)) != 0) {
            printf("Your input is wrong. Please retry.\n");
            fflush(stdin);
            goto flag;
        }
        if(num > max)
            max = num;
    }
    printf("The maximum number is %.0f.", max);
    return 0;
}
```

Input

1 2 3 4 5 6 7 8 9 10

Output

Please input ten numbers:

1

2

3

4

5

6

7

8

9

10

The maximum number is 10.

Question3

Description

Input a date and output the number of day of the date in this year.

Code

```
#include <stdio.h>

int judgeIfTheLeapYear(int year) {
    if(!(year % 400))
        return 1;
    else if(year % 100 && !(year % 400))
        return 0;
    else if(!(year % 4))
        return 1;
    else
        return 0;
}

int main() {
    int year, month, day;
    int tot = 0;
```

```

int i, j, k;
int days[13] = {0, 31, 28, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31};
int ok;

printf("Please input the date. The format is like 2020-01-01.\n");
while(1) {
    ok = scanf("%d-%d-%d", &year, &month, &day);
    if(ok == 3)
    {
        if(judgeIfTheLeapYear(year))
            days[2] = 29;
        else
            days[2] = 28;

        if(month > 12 || month < 1 || day > days[month] || day < 1) {
            printf("Your input is wrong. Please retry.\n");
            fflush(stdin);
        }
        else
            break;
    }
    else {
        printf("Your input is wrong. Please retry.\n");
        fflush(stdin);
    }
}

for(i = 1; i < month; i++) {
    tot += days[i];
}
tot += day;
printf("The number of day of the date in this year is: %d", tot);

return 0;
}

```

Input

2020-03-22

Output

Please input the date. The format is like 2020-01-01.

2020-03-22

The number of day of the date in this year is: 82

Question4

Description

Calculate the value of $s = a + aa + aaa + \dots + aaa\dots a$, the a and n which is input by keyboard.

Code

```
#include <stdio.h>
#define MAXN 100
void highAccuracyPlus(int a, int n) {
    int sum[100];
    int i, j, k;
    int up = 0;
    sum[1] = 0;
    for(i = 1; i <= n; i++) {
        sum[i+1] = 0;
        for(j = 1; j <= i; j++) {
            sum[j] += a;
            if(sum[j] >= 10) {
                sum[j] -= 10;
                sum[j+1]++;
            }
        }
    }

    if(sum[n+1]) {
        printf("The sum is ");
        for(i = n+1; i >= 1; i--)
            printf("%d", sum[i]);
    } else {
        printf("The sum is ");
        for(i = n; i >= 1; i--)
            printf("%d", sum[i]);
    }
}

int main() {
    int a, n;
    int now = 0;
    int sum = 0;
    int i;
    printf("Please input a and n: ");
    flag: scanf("%d%d", &a, &n);
    if(a >= 10 || a <= 0) {
        printf("Wrong answer! Please retry.\n");
        goto flag;
    }
```

```

}
if(n <= 9) {
    for(i = 1; i <= n; i++) {
        now = now * 10 + a;
        sum += now;
    }
    printf("The sum is %d", sum);
} else {
    highAccuracyPlus(a, n);
}
return 0;
}

```

Input

8 8

Output

```

Please input a and n: 8 8
The sum is 98765424

```

Question5

Description

A bowling tem consists of five players.Each player bowls three games.Write a C program that uses a nested loop to enter each player's individual scores and then computes and displays the average score for each bowler. Assum that each bowler has the following scores:

1st bowler: 286 252 265

2nd bowler: 212 186 215

3rd bowler: 252 232 216

4th bowler: 192 201 235

5th bowler: 186 236 272

Code

```

#include<stdio.h>

int main(){

```

```
int point;
int sum = 0;
float avg;

for(int i=0;i<5;i++){
    for(int k=0;k<3;k++){
        printf("please enter the point of each Bowler :");
        scanf("%d",&point);
        sum = sum+point;
    }
    avg = sum/3;
    printf("%d st Bowler's average point is : %f \n",i+1,avg);
    sum = 0;
}

return 0;
}
```

Input

1st bowler: 286 252 265

2nd bowler: 212 186 215

3rd bowler: 252 232 216

4th bowler: 192 201 235

5th bowler: 186 236 272

Output

please enter the point of each Bowler :285
please enter the point of each Bowler :252
please enter the point of each Bowler :265
1 st Bowler's average point is : 267.000000
please enter the point of each Bowler :212
please enter the point of each Bowler :186
please enter the point of each Bowler :215
2 st Bowler's average point is : 204.000000
please enter the point of each Bowler :252
please enter the point of each Bowler :232
please enter the point of each Bowler :216
3 st Bowler's average point is : 233.000000
please enter the point of each Bowler :192
please enter the point of each Bowler :201
please enter the point of each Bowler :235
4 st Bowler's average point is : 209.000000
please enter the point of each Bowler :286
please enter the point of each Bowler :236
please enter the point of each Bowler :272
5 st Bowler's average point is : 264.000000

Question6

Description

Write a C program to find out how many different numbers consist of different three digits 1,2,3 and 4?

Code

```
#include<stdio.h>
int main()
{
    int i,j,k;
    int count=0;
    for(i=1;i<5;i++)
```



```

{
    for(j=1;j<5;j++)
    {
        for(k=1;k<5;k++)
        {
            if(i!=j&&j!=k&&i!=k)
            {
                printf("%d%d%d ",i,j,k);
                count++;
                if(count%5==0)
                {
                    printf("\n");
                }
            }
        }
    }
    printf("count:%d",count);
    return 0;
}

```

Input

none

Output

```

123 124 132 134 142
143 213 214 231 234
241 243 312 314 321
324 341 342 412 413
421 423 431 432 count:24

```