第九次-17377191-段秋阳

1. 尝试用递归倒序输出一个正整数

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

int recursiveReverse(int);

int main()
{
    recursiveReverse(1234);
    return 0;
}

int recursiveReverse(int num)
{
    if (num > 0)
    {
        printf("%d", num % 10);
        recursiveReverse(num / 10);
    }
}
```

```
[Running] cd "/run/media/dallasautumn/7EE29D11E29CCF31/lovestudy/studybetter/C语言程序设计/C-Programming/Week09/" && gcc 1.c -o 1 && "/run/media/
dallasautumn/7EE29D11E29CCF31/lovestudy/studybetter/C语言程序设计/C-Programming/Week09/"1
4321
[Done] exited with code=0 in 0.476 seconds
```

2. P285，1（尝试比较一下循环和递归的效率）

```c
//Fibonacci P285:1
#include <stdio.h>

int fib(int num);

int main()
{
    printf("%d", fib(8));
    return 0;
}

int fib(int n)
{
    if (n == 1)
        return 0;
    else if (n == 2)
        return 1;
    else
```

```
        return fib(n - 1) + fib(n - 2);
}
```

```
[Running] cd "/run/media/dallasautumn/7EE29D11E29CCF31/lovestudy/studybetter/C语言程序设计/C-Programming/Week09/" && gcc 2.c -o 2 && "/run/media/
dallasautumn/7EE29D11E29CCF31/lovestudy/studybetter/C语言程序设计/C-Programming/Week09/"2
13
[Done] exited with code=0 in 0.199 seconds
```

3. P285 , 3

```
//P285:3
#include <stdio.h>

int arithmeticSequence(int firstItem, int commonDifference, int itemIndex);

int main()
{
    printf("%d", arithmeticSequence(0, 1, 10));
    return 0;
}

int arithmeticSequence(int a, int d, int n)
{
    if (n == 1)
        return a;
    else
        return d + arithmeticSequence(a, d, n - 1);
}
```

```
[Running] cd "/run/media/dallasautumn/7EE29D11E29CCF31/lovestudy/studybetter/C语言程序设计/C-Programm
dallasautumn/7EE29D11E29CCF31/lovestudy/studybetter/C语言程序设计/C-Programming/Week09/"3
9
[Done] exited with code=0 in 0.198 seconds
```

4. P286 , 6

```
//P286:6
#include <stdio.h>

int gcd(int num1, int num2);
int max(int num1, int num2);
int min(int num1, int num2);

int main()
{
    printf("%d", gcd(320, 116));
    return 0;
}

int gcd(int a, int b)
{
    if (a % b == 0)
```

```
        return b;
    else
        return gcd(b, a % b);
}
```

```
[Running] cd "/run/media/dallasautumn/7EE29D11E29CCF31/lovestudy/studybetter/C语言程序设计/C-Programming/Week09/" && gcc 4.c -o 4 && "/run/media/
dallasautumn/7EE29D11E29CCF31/lovestudy/studybetter/C语言程序设计/C-Programming/Week09/"4
4
[Done] exited with code=0 in 0.162 seconds
```

5. P286，7(题目表述奇怪，本意就是实现两个函数，一个递归，一个循环，来进行回文数字的判读)

```c
//P286:7
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#define M 20

int numpal(int n);
int getDigit(int n, int i);

int main()
{
    int num;
    for (int i = 0; i < 5; i++)
    {
        printf("Plz enter a number:\n");
        scanf("%d", &num);
        printf("Input %d, result:%d\n", num, numpal(num));
    }
    return 0;
}

int numpal(int n)
{
    char str[M];
    sprintf(str, "%d", n);
    int len = strlen(str);

    for (int i = 1; i <= len / 2; i++)
        if (getDigit(n, i) == getDigit(n, len + i - 1))
            return 1;
    return 0;
}


int getDigit(int n, int i)
{
    if (i == 1)
        return n % 10;
    else
        return getDigit(n / 10, i - 1);
}
```

```
[Running] cd "/run/media/dallasautumn/7EE29D11E29CCF31/lovestudy/studybetter/C语言程序设计/C-Programming/Week09/" && gcc 5.c -o 5 && "/run/media/
dallasautumn/7EE29D11E29CCF31/lovestudy/studybetter/C语言程序设计/C-Programming/Week09/"5
Input 1234, result:0
[Done] exited with code=0 in 0.379 seconds

[Running] cd "/run/media/dallasautumn/7EE29D11E29CCF31/lovestudy/studybetter/C语言程序设计/C-Programming/Week09/" && gcc 5.c -o 5 && "/run/media/
dallasautumn/7EE29D11E29CCF31/lovestudy/studybetter/C语言程序设计/C-Programming/Week09/"5
Input 12321, result:1
[Done] exited with code=0 in 0.354 seconds
```

6. 《现代方法》(第2版) p153, 7

```c
//《现代方法》P153：7
#include <stdio.h>
#include <stdlib.h>

int power(int x, int n);

int main()
{
    printf("%d", power(2, 9));
    return 0;
}

int power(int x, int n)
{
    if (n == 0)
        return 1;
    else if (n % 2 == 0)
        return power(x, n / 2) * power(x, n / 2);
    else
        return x * power(x, n - 1);
}
```

```
[Running] cd "/run/media/dallasautumn/7EE29D11E29CCF31/lovestudy/studybetter/C语言程序设计/C-Programming/Week09/" && gcc 6.c -o 6 && "/run/media/
dallasautumn/7EE29D11E29CCF31/lovestudy/studybetter/C语言程序设计/C-Programming/Week09/"6
256
[Done] exited with code=0 in 0.11 seconds
```