강의명 : 프로그래밍
실습 번호 : 3
실습 제목 : Lab03-types, operators, and expressions
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1. Int의 한계 값 출력

1.1

Limits.h

1.2

```
int  int_min;
int  int_max;
long  long_max;
long  long_min;
short  shrt_min;
short  shrt_max;
unsigned int  uint_max;
unsigned long  ulong_max;
unsigned short  ushrt_max;

 printf("int_min=%d\n", INT_MIN);
 printf("int_max=%d\n", INT_MAX);
 printf("long_max=%ld\n",LONG_MAX);
 printf("long_min=%ld\n",LONG_MIN);
 printf("shrt_max=%d\n",SHRT_MAX);
 printf("shrt_min=%d\n",SHRT_MIN);
 printf("uint_max=%u\n",UINT_MAX);
 printf("ulong_max=%lu\n",ULONG_MAX);
 printf("ushrt_max=%d\n",USHRT_MAX);
 최소,최대값들 정의를 내리고 출력하였다.
```

1.3

```
s2211051@oak:lab03$ emacs limits.c
s2211051@oak:lab03$ gcc limits.c -o limits
s2211051@oak:lab03$ ./limits
int_min=-2147483648
int_max=2147483647
long_max=9223372036854775807
long_min=-9223372036854775808
shrt_max=32767
shrt_min=-32768
uint_max=4294967295
ulong_max=18446744073709551615
ushrt_max=65535
```

2. unsigned int의 bit[n] 찾기

2.1

>> 한개, & 한개

2.2

(word>>n)&0x01;

2.3

```
s2211051@oak:lab03$ gcc getbit.c -o getbit
s2211051@oak:lab03$ ./getbit
getbit(8, 3)=1
getbit(8, 2)=0
getbit(15, 3)=1
getbit(15, 1)=1
4042322160(10)=11110000111100001111000011110000(2)
```

3.unsigned int 의 비트 마스크 하기

3.1

& 1번, ~ 1번

3.2

```
(word&(~mask));
```

3.3

```
s2211051@oak:lab03$ gcc maskbits.c -o maskbits
s2211051@oak:lab03$ ./maskbits
maskbits(0xf0f0f0f0, 0xf0f0f0f0)=0x00000000
maskbits(0xf0f0f0f0, 0x0f0f0f0f)=0xf0f0f0f0
maskbits(0xf0f0f0f0, 0x60606060)=0x90909090
```

4. unsigned int 숫자들 출력하기

4.1

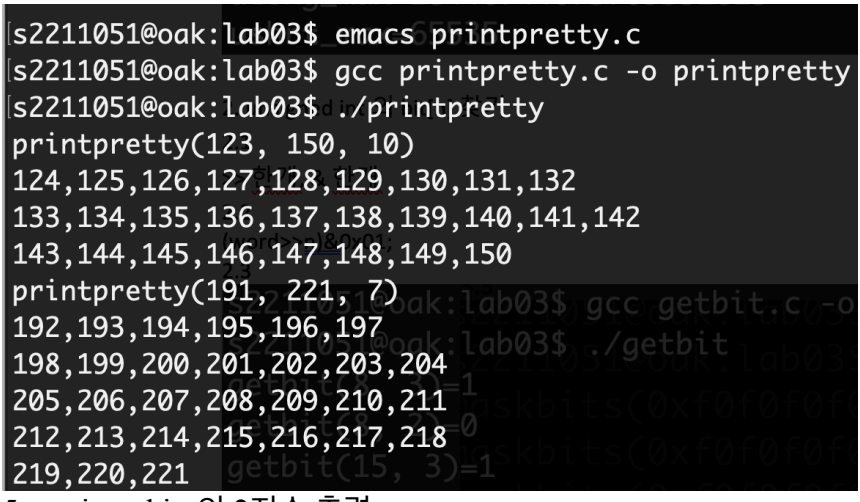
Modulus operator 한개

Conditional operator 한개

4.2

```
int i,j=1;
 for(i=l, i<=r; i++, j++;)
   {
     printf("%d",i);
     if(i==r)
       break;
     j%m==0? printf("\n"):printf(",");
   }
      printf("\n");
```

4.3



5. unsigned int의 2진수 출력

5.1

Conditional operator 1번

Bitwise operator >> 한번, & 한번

For 문 한번

5.2

```
int i;
 for (i=31; i>= 0; i--) {
   ((n>>i)&0x01)
     ? printf("1") : printf("0");
 }
    printf("\n");
```

5.3

```
s2211051@oak:lab03$ emacs uint2bin.c
s2211051@oak:lab03$ gcc uint2bin.c -o uint2bin
s2211051@oak:lab03$ ./uint2bin
00000000000000000000000000000000
00000000000000000000000000000001
00000000000000000000000000000010
00000000000000000000000000000011
00000000000000000000000000000100
00000000000000000000000000000101
00000000000000000000000000000110
00000000000000000000000000000111
11111111111111111111111111111111
11111111111111111111111111111110
11111111111111111111111111111101
11111111111111111111111111111100
11111111111111111111111111111011
11111111111111111111111111111010
11111111111111111111111111111001
11111111111111111111111111111000
```

6. unsigned int의 8진수 출력

6.1

6.2

6.3