

Module: R1: C Programming
Section: Intro to C Task: Overflow/Underflow

Task 1.2

Integer Underflow & Overflow

Code Snippet:

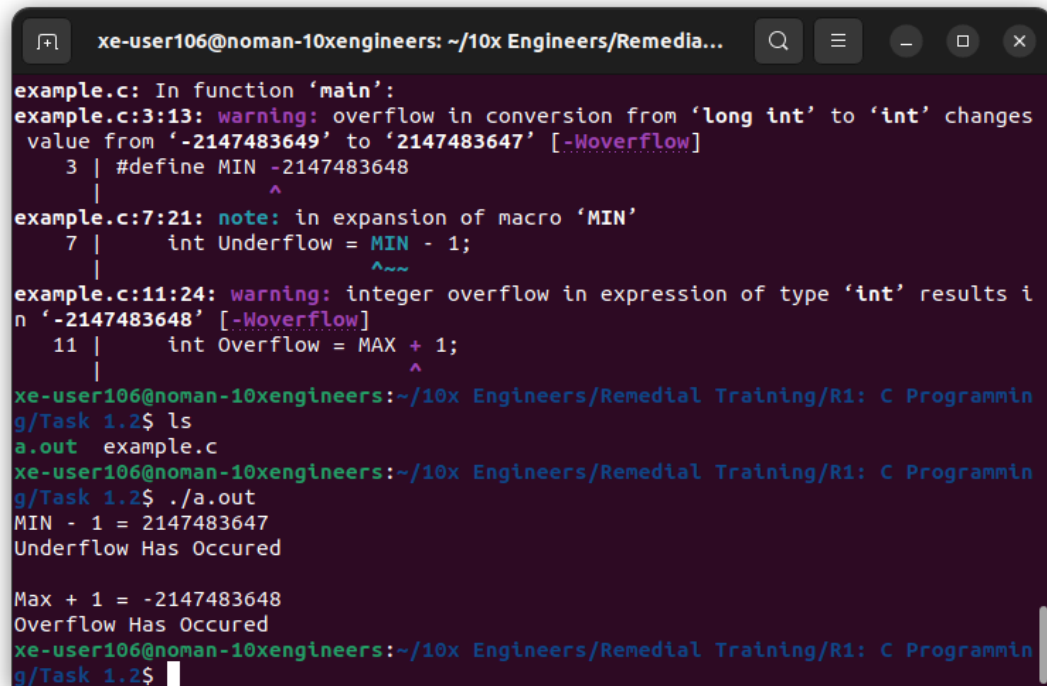
```
#include <stdio.h>

#define MIN -2147483648
#define MAX 2147483647

int main(void) {
    int Underflow = MIN - 1;
    printf("MIN - 1 = %d\n", Underflow);
    printf("Underflow Has Occured\n\n");

    int Overflow = MAX + 1;
    printf("Max + 1 = %d\n", Overflow);
    printf("Overflow Has Occured\n");
    return 0;
}
```

Output:



```
xe-user106@noman-10xengineers: ~/10x Engineers/Remedia...
example.c: In function 'main':
example.c:3:13: warning: overflow in conversion from 'long int' to 'int' changes
  value from '-2147483649' to '2147483647' [-Woverflow]
   3 | #define MIN -2147483648
     |           ^
example.c:7:21: note: in expansion of macro 'MIN'
   7 |     int Underflow = MIN - 1;
     |                     ^~~~
example.c:11:24: warning: integer overflow in expression of type 'int' results i
n '-2147483648' [-Woverflow]
  11 |     int Overflow = MAX + 1;
     |                     ^
xe-user106@noman-10xengineers:~/10x Engineers/Remedial Training/R1: C Programmin
g/Task 1.2$ ls
a.out  example.c
xe-user106@noman-10xengineers:~/10x Engineers/Remedial Training/R1: C Programmin
g/Task 1.2$ ./a.out
MIN - 1 = 2147483647
Underflow Has Occured

Max + 1 = -2147483648
Overflow Has Occured
xe-user106@noman-10xengineers:~/10x Engineers/Remedial Training/R1: C Programmin
g/Task 1.2$
```