While Loop

Example 30

```
#include <stdio.h>
int main() {
    int i = 0, n;
    double sum=0.0, x;

    printf("Enter number of values to read: ");
    scanf("%d", &n)

    // DON'T FORGET to initialize i before entering loop.
    while (i < n) { // Counter controlled
        printf("Enter next value: ");
        scanf("%lf", &x);  // Reading a double
        sum += x;
        i++;               // DON'T FORGET to increment i
    }
    printf("Average of %d values = %.3f\n", n, sum/n);
}
```

While Loop

Example 31

```
#include <stdio.h>
int main() {
    int n = 0;
    double x, sum = 0.0;

    printf("Enter first value: ");
    scanf("%lf", &x);

    // DON'T FORGET to read x before entering loop
    // While Loop for repeatedly summing input numbers.
}
```

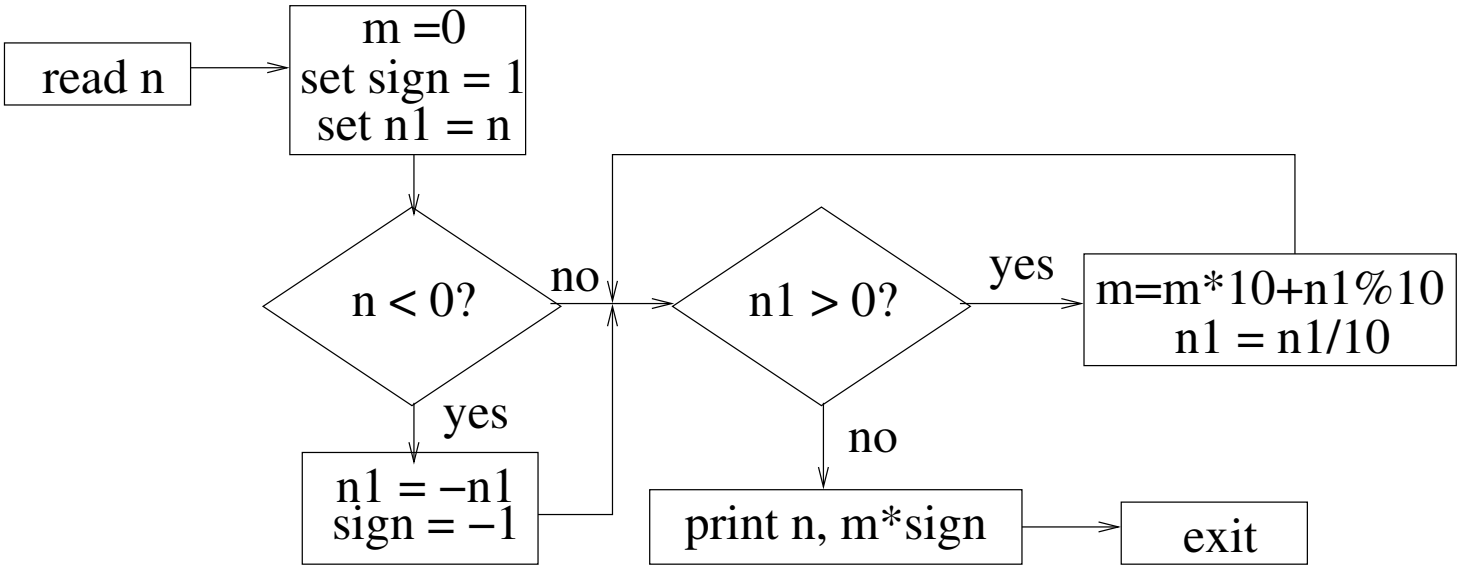
While Loop

Example 31 (contd)

```
// Exit the on reading a negative value
while (x > 0) {
        n++;                              // Count values read
        sum += x;                         // Add the value to sum
        printf("Enter next value: ");
        scanf("%lf", &x);                  // Read the next value
}
if (n) // Nonzero n means some positive values are read
     printf("Average of %d values = %.3f\n", n, sum/n);
else    // Did not enter loop
     printf("The first input is a negative number\n");
```

While Loop

Example 32



While Loop

Example 32 (contd)

```
#include <stdio.h>
int main() {
    int n, n1, sign = 1, m = 0;

    printf("Enter a number: ");
    scanf("%d", &n);

    n1 = n;
    if (n1 < 0) {    // Convert to positive
        n1 = -n1;
        sign = -1; // Change sign from +ve to -ve
    }
    while (n1 > 0) { // On event n1 == zero exit loop.
        m = m * 10 + n1 % 10; // Add digit at unit's place of n1.
        n1 = n1/10;           // Update n1 to its tens value.
    }
    printf("n: %d and m: %d\n", n, m * sign); // print result
}
```

While Loop

Use of Continue

- Used for skipping un-executed part of the current iteration in a loop.
- Essentially works as a goto.
- It transfers control to the beginning of the next iteration.
- Judicious use of continue result in efficiency of loop.
- Also comes handy for validity check of input.

While Loop

Example 33 (Prime Numbers)