

while Loop

Example – while Loop

```
// Input
unsigned int number;
std::cin >> number;
unsigned int nbits = 0;

// Determine number of bits
while (number != 0) {
    number /= 2;
    ++nbits;
}

// Output
std::cout << "Number of bits: "
          << nbits << "\n";
```

Example – while Loop

number:

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Example – while Loop

number:

6

number: 6

```
// Input
unsigned int number;
std::cin >> number;
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// Determine number of bits
while (number != 0) {
    number /= 2;
    ++nbits;
}

// Output
std::cout << "Number of bits: "
          << nbits << "\n";
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Example – while Loop

number: 6
nbits: 0

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unsigned int number;
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// Determine number of bits
while (number != 0) {
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std::cout << "Number of bits: "
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Example – while Loop

number: 6
nbits: 0

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std::cout << "Number of bits: "
           << nbits << "\n";
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Example – while Loop

number: 6
nbits: 0

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unsigned int number;
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unsigned int nbits = 0;

// Determine number of bits
while (number != 0) {
    number /= 2;
    ++nbits;
}

// Output
std::cout << "Number of bits: "
          << nbits << "\n";
```

6 != 0

true

Example – while Loop

number: 3
nbits: 0

```
// Input
unsigned int number;
std::cin >> number;
unsigned int nbits = 0;

// Determine number of bits
while (number != 0) {
    number /= 2;
    ++nbits;
}

// Output
std::cout << "Number of bits: "
           << nbits << "\n";
```

Example – while Loop

number: 3
nbits: 1

```
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unsigned int number;
std::cin >> number;
unsigned int nbits = 0;

// Determine number of bits
while (number != 0) {
    number /= 2;
    ++nbits;
}

// Output
std::cout << "Number of bits: "
           << nbits << "\n";
```

Example – while Loop

number: 3
nbits: 1

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// Input
unsigned int number;
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// Determine number of bits
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    ++nbits;
}

// Output
std::cout << "Number of bits: "
           << nbits << "\n";
```

Example – while Loop

number: 3
nbits: 1

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// Input
unsigned int number;
std::cin >> number;
unsigned int nbits = 0;

// Determine number of bits
while (number != 0) {
    number /= 2;
    ++nbits;
}

// Output
std::cout << "Number of bits: "
          << nbits << "\n";
```

3 != 0

true

Example – while Loop

number: 1
nbits: 1

```
// Input
unsigned int number;
std::cin >> number;
unsigned int nbits = 0;

// Determine number of bits
while (number != 0) {
    number /= 2;
    ++nbits;
}

// Output
std::cout << "Number of bits: "
          << nbits << "\n";
```

Example – while Loop

number: 1
nbits: 2

```
// Input
unsigned int number;
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    number /= 2;
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}

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std::cout << "Number of bits: "
          << nbits << "\n";
```

Example – while Loop

number: 1
nbits: 2

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    ++nbits;
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std::cout << "Number of bits: "
          << nbits << "\n";
```

Example – while Loop

number: 1
nbits: 2

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unsigned int nbits = 0;

// Determine number of bits
while (number != 0) {
    number /= 2;
    ++nbits;
}

// Output
std::cout << "Number of bits: "
          << nbits << "\n";
```

1 != 0
true

Example – while Loop

number: 0
nbits: 2

```
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unsigned int number;
std::cin >> number;
unsigned int nbits = 0;

// Determine number of bits
while (number != 0) {
    number /= 2;
    ++nbits;
}

// Output
std::cout << "Number of bits: "
          << nbits << "\n";
```

Example – while Loop

number: 0
nbits: 3

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// Determine number of bits
while (number != 0) {
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Example – while Loop

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Example – while Loop

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nbits: 3

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    ++nbits;
}

// Output
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          << nbits << "\n";
```

0 != 0

false

Example – while Loop

number: 0
nbits: 3

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Example – while Loop

number: 0
nbits: 3

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          << nbits << "\n";
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Output:

Number of bits: 3