1) The three components are

1) sign bit S
2) Exponent (E)
3) fractional part (M)

Number is $f = (-1)^S M \times 2^E$

Two kinds of encoding done
1) ~~sig~~ single precission (32 bits, E (8 bits) M (23 bits))
11) double precission (64 bits, E 11 bits, M 52 bits)
1 sign bit for each type

⇒ The precission depends on fractional part.
⇒ The number of significant digits depends on the number of bits in M
when M = 24 bits
we have x significant digits
where $2^{24} = 10^x \Rightarrow x = 7.2\ldots$
$\Rightarrow x = 7$ ⇒ upto seven significant decimal places we can represent in binary floating point representation.

⇒ The range of number depends on the number of bits in exponent that is $2^{8}-1 = 2^8 - 1 = 1$ to 254

⇒ The exponent is encoded as a biased value
$E = exp + bias$ where $bias = 127 = (2^{8-1} - 1)$
for single precission
$bias = 1023 (2^{11-1} - 1)$
for double precission

⇒ Example

As the precission depends on the fractional part(mantissa)

for single precission

23 bits are available so we can precisely represent upto 23 bits after decimal

for example when the decimal number is

2.3

it's representionis,

10.01001100110011001100110

for double precission

52 bits are available so we can precisely represent upto 52 bits after decimal

for example when the decimal number is

2.3

it's representation is

10.0100110011001100110011001100110011001100110011001100110011

⇒ So in normal word saying when the number's decimal part lies in between 0 to $\frac{1}{2^{23}}$ it can be accurately representable in single precission type of representation.

⇒ when the number's decimal part lies between 0 to $\frac{1}{2^{52}}$ it can be represented acurately using double preeission representaion.

⇒ when number is

$1.x$

if $0 < x < \frac{1}{2^{23}}$

and it's represented in single preeission, it has 100% acuracy

⇒ when number is

$1.x$

if $0 < x < \frac{1}{2^{52}}$

and it's represented in double preeission, it has 100% accuracy.