Condition

if statements

```
if(Expression)
{
    statements
}
```
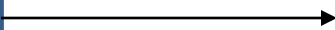
indent (1 Tab)

if statements

if(logical Expression)
{

☐ statements

}

☐ ————————————→ indent (1 Tab)

Check if a number is positive

```
int main()
{
    int a;
    scanf("%d", &a);
    if(a > 0)
    {
        printf("a is positive\n");
    }
return 0;
}
```

a [ ]

Check if a number is positive

```
int main()
{
    int a;
    scanf("%d", &a);
    if(a > 0)
    {
        printf("a is positive\n");
    }
return 0;
}
```

a 20

Check if a number is positive

```c
int main()
{
    int a;
    scanf("%d", &a);
    if(a > 0)
    {
        printf("a is positive\n");
    }
return 0;
}
```

a 20

Check if a number is positive

```c
int main()
{
    int a;
    scanf("%d", &a);
    if(a > 0)
    {
        printf("a is positive\n");
    }
return 0;
}
```

a 20

a is positive

Check if a number is positive

```c
int main()
{
    int a;
    scanf("%d", &a);
    if(a > 0)
    {
        printf("a is positive\n");
    }
    return 0;
}
```

a `20`

a is positive

Check if a number is positive

```
int main()
{
    int a;
    scanf("%d", &a);
    if(a > 0)
    {
        printf("a is positive\n");
    }
return 0;
}
```

a -10

Check if a number is positive

```
int main()
{
    int a;
    scanf("%d", &a);
    if(a > 0)
    {
        printf("a is positive\n");
    }
return 0;
}
```

a   -10

Check if a number is positive

```c
int main()
{
    int a;
    scanf("%d", &a);
    if(a > 0)
    {
        printf("a is positive\n");
    }
    return 0;
}
```

a -10

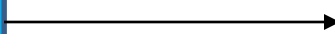# if-else statements

```
if(Expression)
{
    statements
}
else
{
    statements
}
```

indent (1 Tab)

if-else statements

if(logical expression)
{
☐ statements
}
else
{
☐ statements
}

☐ ———————→ indent (1 Tab)

Check if a number is positive or negative

```
int main()
{
  int a;
  scanf("%d", &a);
  if(a > 0)
  {
     printf("a is positive\n");
  }
  else
  {
     printf("a is negative\n");
  }
  return 0;
}
```

a

Check if a number is positive or negative

```c
int main()
{
    int a;
    scanf("%d", &a);
    if(a > 0)
    {
        printf("a is positive\n");
    }
    else
    {
        printf("a is negative\n");
    }
    return 0;
}
```

a 10

10

Check if a number is positive or negative

```c
int main()
{
    int a;
    scanf("%d", &a);
    if(a > 0)
    {
        printf("a is positive\n");
    }
    else
    {
        printf("a is negative\n");
    }
    return 0;
}
```

a 10

10

Check if a number is positive or negative

```c
int main()
{
    int a;
    scanf("%d", &a);
    if(a > 0)
    {
        printf("a is positive\n");
    }
    else
    {
        printf("a is negative\n");
    }
    return 0;
}
```

a `10`

```
10
a is positive
```

Check if a number is positive or negative

```
int main()
{
    int a;
    scanf("%d", &a);
    if(a > 0)
    {
        printf("a is positive\n");
    }
    else
    {
        printf("a is negative\n");
    }
    return 0;
}
```

a 10

```
10
a is positive
```

Check if a number is positive or negative

```c
int main()
{
    int a;
    scanf("%d", &a);
    if(a > 0)
    {
        printf("a is positive\n");
    }
    else
    {
        printf("a is negative\n");
    }
    return 0;
}
```

a -10

-10

Check if a number is positive or negative

```c
int main()
{
    int a;
    scanf("%d", &a);
    if(a > 0)
    {
        printf("a is positive\n");
    }
    else
    {
        printf("a is negative\n");
    }
    return 0;
}
```

a -10

-10

Check if a number is positive or negative

```c
int main()
{
    int a;
    scanf("%d", &a);
    if(a > 0)
    {
        printf("a is positive\n");
    }
    else
    {
        printf("a is negative\n");
    }
    return 0;
}
```

a -10

-10

Check if a number is positive or negative

```
int main()
{
    int a;
    scanf("%d", &a);
    if(a > 0)
    {
        printf("a is positive\n");
    }
    else
    {
        printf("a is negative\n");
    }
    return 0;
}
```

a -10

-10
a is negative

Check if a number is positive or negative

```c
int main()
{
    int a;
    scanf("%d", &a);
    if(a > 0)
    {
        printf("a is positive\n");
    }
    else
    {
        printf("a is negative\n");
    }
    return 0;
}
```

a -10

```
-10
a is negative
```

If-else if-else statements

```
if(Expression)
{
    statements
}
else if(Expression) {
    statements
}
else if(Expression) {
    statements
}
else if(Expression) {
    statements
}
else{
    statements
}
```

indent (1 Tab)
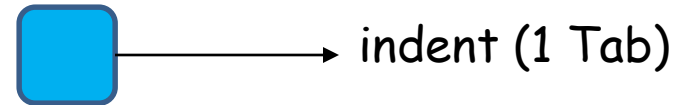
Check if a number is positive/negative/zero

```c
int a;
scanf("%d", &a);
if(a > 0)
{
    printf("a is positive\n");
}
else if (a < 0)
{
    printf("a is negative\n");
}
else
{
    printf("a is zero\n");
}
```

a

Check if a number is positive/negative/zero

```c
int a;
scanf("%d", &a);
if(a > 0)
{
    printf("a is positive\n");
}
else if (a < 0)
{
    printf("a is negative\n");
}
else
{
    printf("a is zero\n");
}
```

a 0

0

```
int a;
scanf("%d", &a);
if(a > 0)
{
    printf("a is positive\n");
}
else if (a < 0)
{
    printf("a is negative\n");
}
else
{
    printf("a is zero\n");
}
```

a 0

0

```
int a;
scanf("%d", &a);
if(a > 0)
{
    printf("a is positive\n");
}
else if (a < 0)
{
    printf("a is negative\n");
}
else
{
    printf("a is zero\n");
}
```

a 0

0

```
int a;
scanf("%d", &a);
if(a > 0)
{
    printf("a is positive\n");
}
else if (a < 0)
{
    printf("a is negative\n");
}
else
{
    printf("a is zero\n");
}
```

a 0

0

Check if a number is positive/negative/zero

```c
int a;
scanf("%d", &a);
if(a > 0)
{
    printf("a is positive\n");
}
else if (a < 0)
{
    printf("a is negative\n");
}
else
{
    printf("a is zero\n");
}
```

a 0

```
0
a is zero
```

Check if a number is positive/negative/zero

```c
int a;
scanf("%d", &a);
if(a > 0)
{
    printf("a is positive\n");
}
else if (a < 0)
{
    printf("a is negative\n");
}
else
{
    printf("a is zero\n");
}
```

a -10

-10

Check if a number is positive/negative/zero

```c
int a;
scanf("%d", &a);
if(a > 0)
{
    printf("a is positive\n");
}
else if (a < 0)
{
    printf("a is negative\n");
}
else
{
    printf("a is zero\n");
}
```

a -10

-10

Check if a number is positive/negative/zero

```c
int a;
scanf("%d", &a);
if(a > 0)
{
    printf("a is positive\n");
}
else if (a < 0)
{
    printf("a is negative\n");
}
else
{
    printf("a is zero\n");
}
```

a -10

-10

Check if a number is positive/negative/zero

```c
int a;
scanf("%d", &a);
if(a > 0)
{
    printf("a is positive\n");
}
else if (a < 0)
{
    printf("a is negative\n");
}
else
{
    printf("a is zero\n");
}
```

a -10

```
-10
a is negative
```

Check if a number is positive/negative/zero

```c
int a;
scanf("%d", &a);
if(a > 0)
{
    printf("a is positive\n");
}
else if (a < 0)
{
    printf("a is negative\n");
}
else
{
    printf("a is zero\n");
}
```

a `-10`

```
-10
a is negative
```

Grading Problem

97-100	A+	67-69	C-
90-96	A	63-66	D+
87-89	A-	60-62	D
83-86	B+	<60	F
80-82	B		
77-79	B-		
73-76	C+		
70-72	C		

Grading Problem

```
int mark;
scanf("%d", &mark);
```

Grading Problem

```c
int mark;
scanf("%d", &mark);
if(mark >= 97 && mark <= 100)
{
        printf("A+\n");
}
```
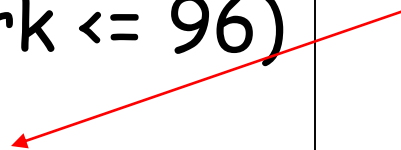
| 97-100 | A+ |

Grading Problem

```
int mark;
scanf("%d", &mark);
if(mark >= 97 && mark <= 100){
    printf("A+\n");
}
else if(mark >= 90 && mark <= 96)
{
    printf("A\n");
}
```

90-96	A

Grading Problem

```c
int mark;
scanf("%d", &mark);
if(mark >= 97 && mark <= 100){
    printf("A+\n");
}
else if(mark >= 90 && mark <= 96){
    printf("A\n");
}
else if(mark >= 87 && mark <= 90)
{
    printf("A-\n");
}
```
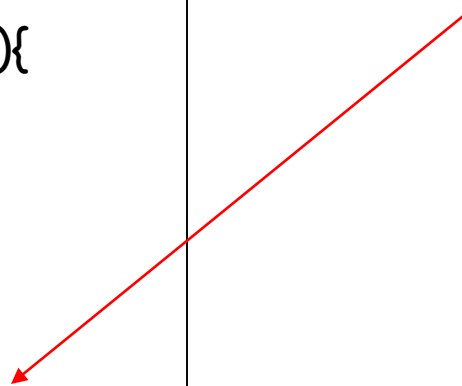
| 87-90 | A- |

Grading Problem

```c
int mark;
scanf("%d", &mark);
if(mark >= 97 && mark <= 100){
      printf("A+\n");
}
else if(mark >= 90 && mark <= 96){
      printf("A\n");
}
else if(mark >= 87 && mark <= 90){
      printf("A-\n");
}
  …
  …
else {
    printf("F\n");
}
```
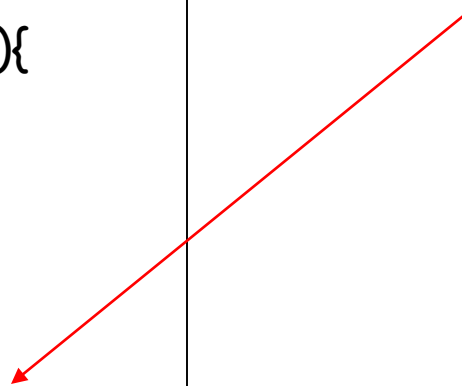
| <60 | F |

Grading Problem

```c
int mark;
scanf("%d", &mark);
if(mark >= 97 && mark <= 100){
    printf("A+\n");
}
else if(mark >= 90 && mark <= 96){
    printf("A\n");
}
else if(mark >= 87 && mark <= 90){
    printf("A-\n");
}
  …
  …
else  if(mark < 60){
    printf("F\n");
}
```

<60	F

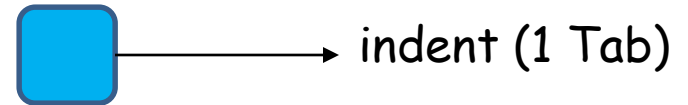# Nested Condition

Nested if-else

```
if(Expression)
{
    if(Expression){
        statements
    }
    else{
        statements
    }
}
else{
    if(Expression){
        statements
    }
    else{
        statements
    }
}
```

If-else if-else statements

```
if(Expression)
{
    if(Expression){
        statements
    }
    else{
        statements
    }
}
else{
    if(Expression){
        statements
    }
    else{
        statements
    }
}
```

□ ———→ indent (1 Tab)

Smallest between 3 numbers
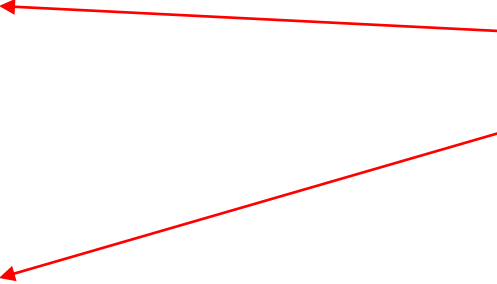
Input   -10   0   5

Output   -10

Smallest between 3 numbers

```
int a, b, c, min;
scanf("%d %d %d", &a, &b, &c);
```

Smallest between 3 numbers

```
int a, b, c, min;
scanf("%d %d %d", &a, &b, &c);
if (a < b)
{

}
else
{

}
```
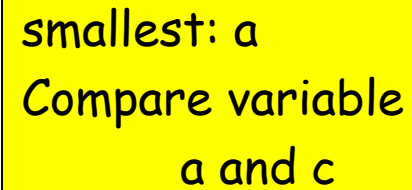
Start with 2 variables
e.g. a and b

Smallest between 3 numbers

```
int a, b, c, min;
scanf("%d %d %d", &a, &b, &c);
if(a < b)
{
        if ( a < c)
        {
            min = a;
        }
        else
        {
            min = c;
        }
}
else
{

}
```
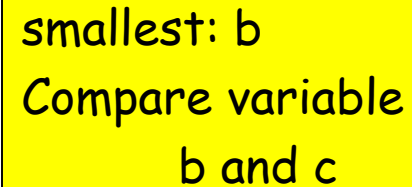
smallest: a
Compare variable
          a and c

Smallest between 3 numbers

```
int a, b, c, min;
scanf("%d %d %d", &a, &b, &c);
if(a < b)
{
}
else
{
    if (b < c)
    {
        min = b;
    }
    else
    {
        min = c;
    }
}
```

smallest: b
Compare variable
        b and c

Smallest between 3 numbers

```c
int a, b, c, min;
scanf("%d %d %d", &a, &b, &c);
if(a < b){
   if ( a < c){
      min = a;
   }
   else{
      min = c;
   }
}
else {
   if (b < c){
      min = b;
   }
   else{
      min = c;
   }
}
```

a 0

b 10

c 4

Smallest between 3 numbers

```c
int a, b, c, min;
scanf("%d %d %d", &a, &b, &c);
if(a < b){
    if ( a < c){
        min = a;
    }
    else{
        min = c;
    }
}
else {
    if (b < c){
        min = b;
    }
    else{
        min = c;
    }
}
```

a   0

b   10

c   4

Smallest between 3 numbers

```c
int a, b, c, min;
scanf("%d %d %d", &a, &b, &c);
if(a < b){
    if ( a < c){
        min = a;
    }
    else{
        min = c;
    }
}
else {
    if (b < c){
        min = b;
    }
    else{
        min = c;
    }
}
```

a   0

b   10

c   4

Smallest between 3 numbers

```
int a, b, c, min;
scanf("%d %d %d", &a, &b, &c);
if(a < b){
    if ( a < c){
        min = a;
    }
    else{
        min = c;
    }
}
else {
    if (b < c){
        min = b;
    }
    else{
        min = c;
    }
}
```

a 0

b 10

c 4

Smallest between 3 numbers

```
int a, b, c, min;
scanf("%d %d %d", &a, &b, &c);
if(a < b){
    if ( a < c){
        min = a;
    }
    else{
        min = c;
    }
}
else {
    if (b < c){
        min = b;
    }
    else{
        min = c;
    }
}
```

a 0

b -10

c 4

Smallest between 3 numbers

```
int a, b, c, min;
scanf("%d %d %d", &a, &b, &c);
if(a < b){
    if ( a < c){
        min = a;
    }
    else{
        min = c;
    }
}
else {
    if (b < c){
        min = b;
    }
    else{
        min = c;
    }
}
```

a 0

b -10

c 4

Smallest between 3 numbers

```c
int a, b, c, min;
scanf("%d %d %d", &a, &b, &c);
if(a < b){
    if ( a < c){
        min = a;
    }
    else{
        min = c;
    }
}
else {
    if (b < c){
        min = b;
    }
    else{
        min = c;
    }
}
```

a 0

b -10

c 4

Smallest between 3 numbers

```
int a, b, c, min;
scanf("%d %d %d", &a, &b, &c);
if(a < b){
    if ( a < c){
        min = a;
    }
    else{
        min = c;
    }
}
else {
    if (b < c){
        min = b;
    }
    else{
        min = c;
    }
}
```

a `0`

b `-10`

c `4`