Conditionals

Syntax

```
if ( /* condition */) {

        // block of if

}
else {

}
```

```
if ( /* condition */) {

        // block of if

}
else if ( /* condition */) {

}
else {

}
```

if ( ) {

}

if ( ) {

}

if ( ) {

}

Q1 WAP to check wheather a number is even or odd.

Method 1: → Very costly

```
if( n%2 == 0) → even
else → odd
```

"Good S/W"

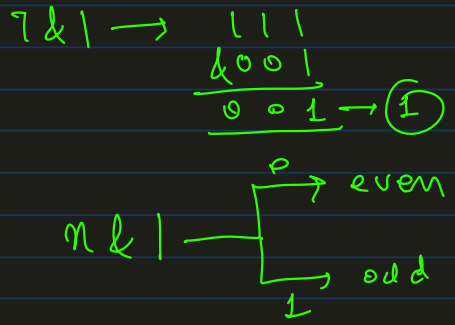
Method 2:

$()_{10}$	$()_2$
0 —	0 0 0
1 —	0 0 1
2 —	0 1 0
3 —	0 1 1
4 —	1 0 0

10 → 1010 (0 → even, 1 → odd)

10 & 1 → 0 → even

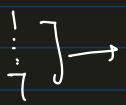
```
  1 0 1 0
& 0 0 0 1
---------
  0 0 0 0  → 0
```



if (n & 1) → odd
else → even

(if (n & 1 == 0) {
even
else
odd

Q2 WAP to take a number from user & print day corresponding to it



Monday

Sunday

else → Invalid day

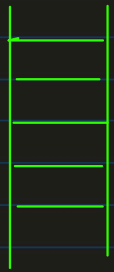
12:55

```
if (day == 1) {
    cout << "MONDAY" << endl;
}
else if (day == 2) {
    cout << "TUESDAY" << endl;
}
else if (day == 3) {
    cout << "WEDNESDAY" << endl;
}
else if (day == 4) {
    cout << "THURSDAY" << endl;
}
else if (day == 5) {
    cout << "FRIDAY" << endl;
}
else if (day == 6) {
    cout << "SATURDAY" << endl;
}
else if (day == 7) {
    cout << "SUNDAY" << endl;
}
else {
    cout << "INVALID DAY";
}
```

→ We are matching a variable with different values.

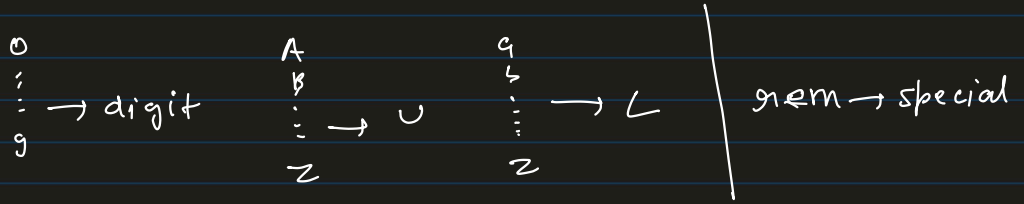
In such cases, where we have to compare variable value with either a numeric value / character value, then we can use switch statement

```
switch (day) {
    case 1 : {
    }
    case 2 : {
    }
    :
    :
    case 7 : {
    }
    default : {
    }
```

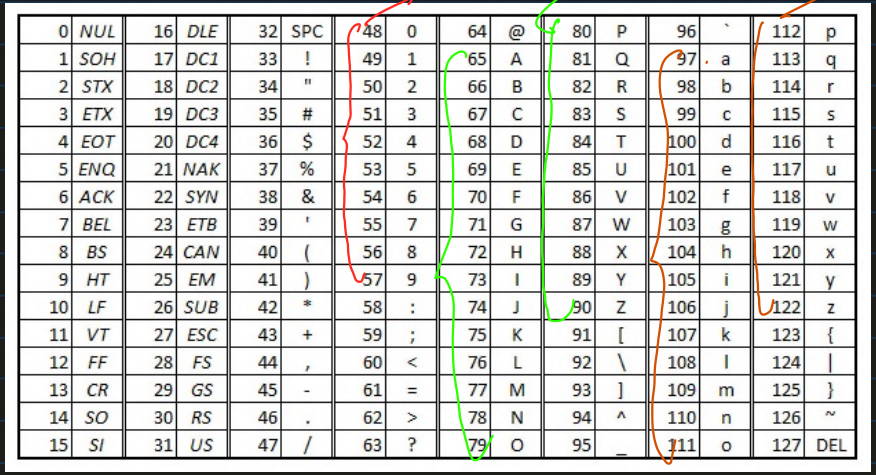


```cpp
switch (day) {
case 1: {
    cout << "Monday" << endl;
    break;
}
case 2: {
    cout << "Tuesday" << endl;
    break;
}
case 3: {
    cout << "Wednesday" << endl;
    break;
}
case 4: {
    cout << "Thursday" << endl;
    break;
}
case 5: {
    cout << "Friday" << endl;
    break;
}
case 6: {
    cout << "Saturday" << endl;
    break;
}
case 7: {
    cout << "Sunday" << endl;
    break;
}
default : {
    cout << "Invalid day" << endl;
    break;
}
}
```

Q3 WAP to take character as input & check wheather it is a digit, uppercase alphabet, lowercase alphabet, special character



ASCII value & their corresponding decimal value



0	NUL	16	DLE	32	SPC	48	0	64	@	80	P	96	`	112	p
1	SOH	17	DC1	33	!	49	1	65	A	81	Q	97	a	113	q
2	STX	18	DC2	34	"	50	2	66	B	82	R	98	b	114	r
3	ETX	19	DC3	35	#	51	3	67	C	83	S	99	c	115	s
4	EOT	20	DC4	36	$	52	4	68	D	84	T	100	d	116	t
5	ENQ	21	NAK	37	%	53	5	69	E	85	U	101	e	117	u
6	ACK	22	SYN	38	&	54	6	70	F	86	V	102	f	118	v
7	BEL	23	ETB	39	'	55	7	71	G	87	W	103	g	119	w
8	BS	24	CAN	40	(	56	8	72	H	88	X	104	h	120	x
9	HT	25	EM	41	)	57	9	73	I	89	Y	105	i	121	y
10	LF	26	SUB	42	*	58	:	74	J	90	Z	106	j	122	z
11	VT	27	ESC	43	+	59	;	75	K	91	[	107	k	123	{
12	FF	28	FS	44	,	60	<	76	L	92	\	108	l	124	|
13	CR	29	GS	45	-	61	=	77	M	93	]	109	m	125	}
14	SO	30	RS	46	.	62	>	78	N	94	^	110	n	126	~
15	SI	31	US	47	/	63	?	79	O	95	_	111	o	127	DEL

```
char ch;
cin>>ch;
if( ch>=48 && ch<=57){
        → digit
}
else if( ch>=65 && ch<=90) {
                U
}
else if( ch>=97 && ch<=122){
                L
}
else → SC
```

```
if (ch >= '0' and ch <= '9') {
    cout << "Digit" << endl;
}
else if (ch >= 'A' and ch <= 'Z') {
    cout << "Upper Case Alphabet" << endl;
}
else if (ch >= 'a' and ch  <= 'z') {
    cout << "Lower Case Alphabet" << endl;
}
else {
    cout << "Special Character" << endl;
}
```

Q. User ← sub, percentage

p → [90, 100] → A+
p → (80, 90] → B+
p → (70, 80] → C+
p → (60, 70] → D+
p → (50, 60] → E+
p <= 50 → FAIL

Q find largest among 3 integers a, b & c

14 19 15

→ 19

a	b	c
14	14	12

Q Program to convert given total seconds into hours, minutes and second format

Total sec

I/P → 4820

O/P → 1 hr 20 min 20 sec

Logic ?

I/P
Process
O/P

S = 4820

1 hr → 60 × 60 = 3600 s

4820 / 3600

$$\begin{cases} h = S/3600 \\ h = 1 \end{cases}$$

$S = S\% \cdot 3600$

$m = S/60$

$S = S\% \cdot 60$

S

Q Program to make an arithematic calculator using menu and operation as choice.

```
Enter two numbers: 10 10
Choose from the MENU:
1.ADDITION
2.SUBTRACTION
3.MULTIPLICATION
4.DIVISION
Enter your choice : 1
Sum : 20
```

```
Enter two numbers: 18 19
Choose from the MENU:
1.ADDITION
2.SUBTRACTION
3.MULTIPLICATION
4.DIVISION
Enter your choice : 2
Difference : -1
```

I/P
Process
O/P

```
Enter two numbers: 7 5
Choose from the MENU:
1.ADDITION
2.SUBTRACTION
3.MULTIPLICATION
4.DIVISION
Enter your choice : 3
Product : 35
```

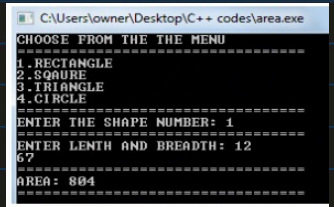
```
Enter two numbers: 14 7
Choose from the MENU:
1.ADDITION
2.SUBTRACTION
3.MULTIPLICATION
4.DIVISION
Enter your choice : 4
Quotient : 2
```

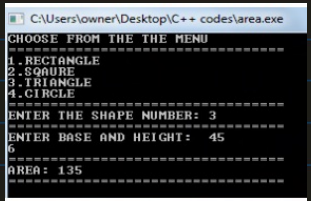
12:33
12:45

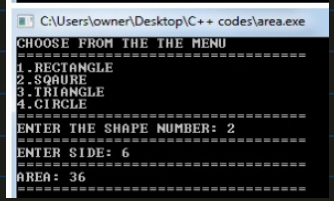
Choose from the MENU:

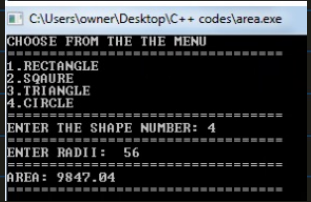
1. Rectangle
2. Square
3. Triangle
4. Circle

Enter the choice :









```
...
cout<<"choose from the menu"<<endl;
cout<<"1.rectangle"<<endl;
cout<<"2.triangle"<<endl;
cout<<"3.square"<<endl;
cout<<"4.circle"<<endl;
cout<<"enter the choice"<<endl;
if(choice==1){
cout<<"enter the lenth and breadth:  ";
int l,b;
cin>>l>>b;
cout<<(l*b)<<endl;
}
else if(choice==2){
 cout<<"enter the base and height: ";
int b,h;
cin>>b>>h;
cout<<(1/2 )*l*b<<endl;
}
else if(choice==3){
cout<<"enter the side";
int s;
cin>>s;
cout<<s*s<<endl;
}
else if (choice==4){
cout<<"enter the radius";
int r;
cin>>r>>endl;
cout<<(a=3.14*r*2)<<endl;
}
```