Arithmatic Operators and Flowcharts

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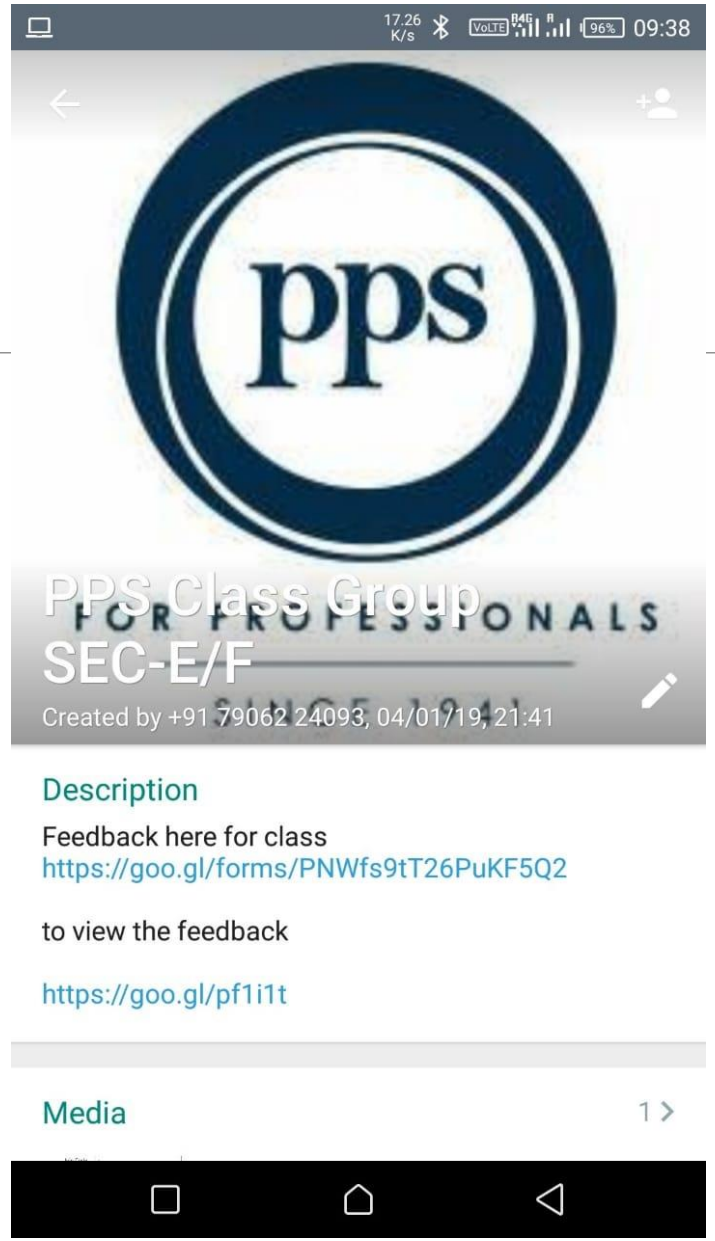
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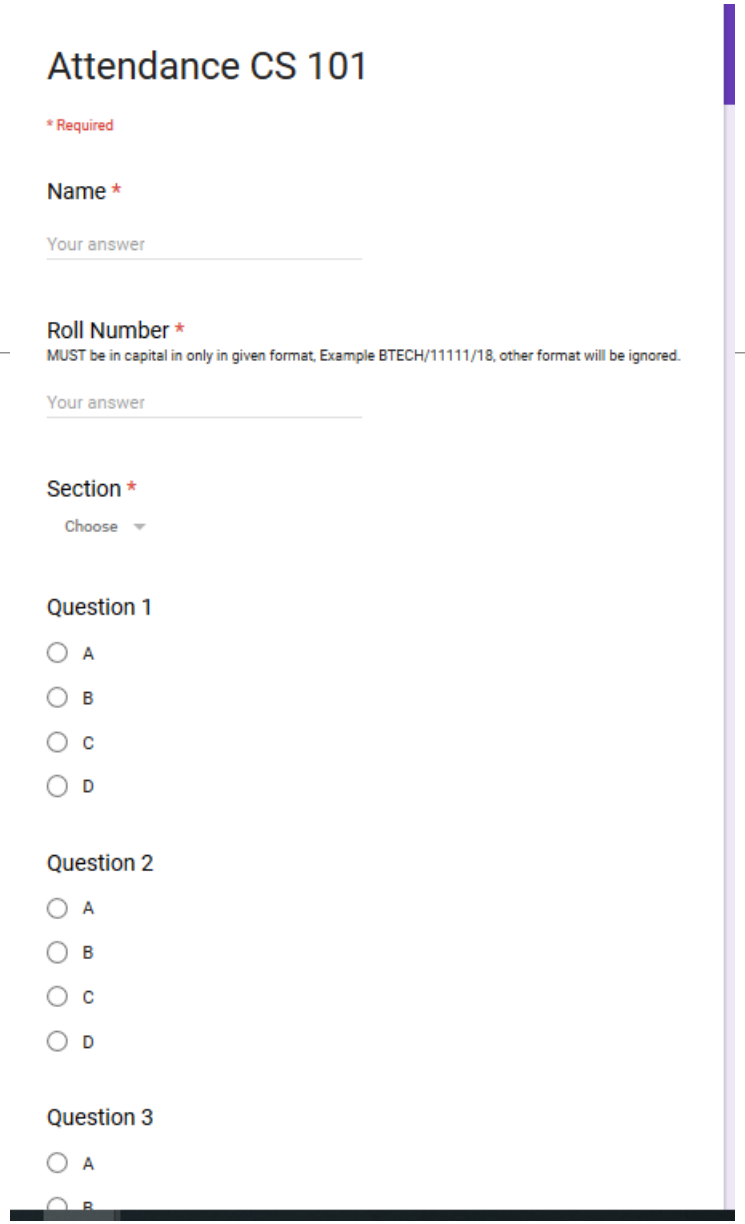
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Question 2
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Question 3
A
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Question 3

- A
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Question 4

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Question 5

- A
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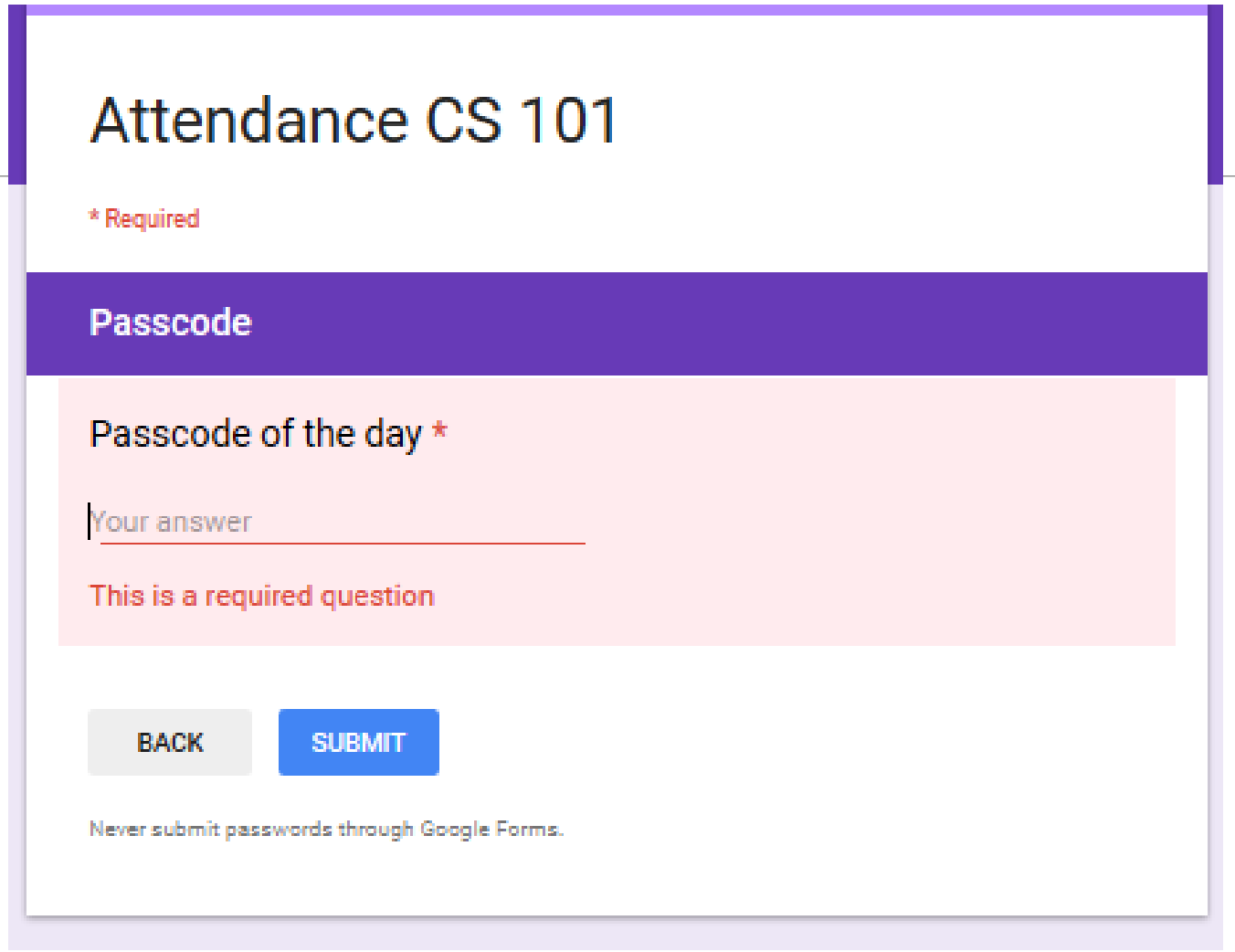
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C Programming Operators

C Arithmetic Operators

Operator	Meaning of Operator
+	addition or unary plus
-	subtraction or unary minus
*	multiplication
/	division
%	remainder after division(modulo division)

Increment and decrement operators

Operator	Meaning of Operator
++	Increment
--	Decrement

C Assignment Operators

Operator	Example	Same as
=	a = b	a = b
+=	a += b	a = a+b
-=	a -= b	a = a-b
*=	a *= b	a = a*b
/=	a /= b	a = a/b
%=	a %= b	a = a%b

Format specifier	Description	Supported data types
%c	Character	char /unsigned char
%d	Signed Integer	short /unsigned short/ int/ long
%e or %E	Scientific notation of float values	float/ double
%f	Floating point	float
%l or %ld or %li	Signed Integer	long
%lf	Floating point	double
%Lf	Floating point	long double
%lu	Unsigned integer	unsigned int / unsigned long
%lli, %lld	Signed Integer	long long
%llu	Unsigned Integer	unsigned long long
%o	Octal representation of Integer.	Short/unsigned short int/unsigned int/long
%p	Address of pointer to void void *	void *
%s	String	char *
%u	Unsigned Integer	unsigned int / unsigned long

Type Conversion, Precedence and Associativity of Operators in C

Type Conversion in C

1. **The process of converting one data type into another data type is known as type conversion.**
2. **implicit type conversion. It is done by the compiler.**
3. **explicit type conversion.**

Arithmetic operation between integer and integer will always result in an integer.

Example

```
int a = 5, b=6;

int sum=0;

Sum=a+b
```

Output Sum= 9

Arithmetic operation between float and float will always give float number.

Example

Float a = 5, b=6;

Float sum=0;

Sum=a+b;

Output Sum= 9.000000

Arithmetic operation between float and integer will always give float number.

In this case, first integer will be promoted to float after that the arithmetic operation will take place.

Operation	Result	Operation	Result
5 / 2	2	2 / 5	0
5.0 / 2	2.5	2.0 / 5	0.4
5 / 2.0	2.5	2 / 5.0	0.4
5.0 / 2.0	2.5	2.0 / 5.0	0.4

Type Conversion in Assignments

Sometimes variable on the left hand side of assignment operator (=) does not match the type of variable on its right hand side.

Example:

```
float a;
int b;
b=4.2;
a=3;
```

Arithmetic Instruction	Result	Arithmetic Instruction	Result
k = 2 / 9	0	a = 2 / 9	0.0
k = 2.0 / 9	0	a = 2.0 / 9	0.2222
k = 2 / 9.0	0	a = 2 / 9.0	0.2222
k = 2.0 / 9.0	0	a = 2.0 / 9.0	0.2222
k = 9 / 2	4	a = 9 / 2	4.0
k = 9.0 / 2	4	a = 9.0 / 2	4.5
k = 9 / 2.0	4	a = 9 / 2.0	4.5
k = 9.0 / 2.0	4	a = 9.0 / 2.0	4.5

K is of int type and a is of float type

Precedence (Hierarchy) of Operators in C

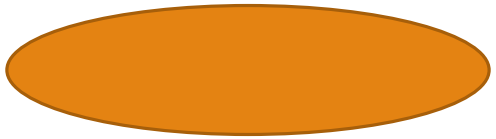
Flowcharts

What is a Flowchart?

1. Flowchart is a graphical representation of an algorithm.
2. it is use as a program-planning tool to solve a problem.
3. It makes use of symbols which are connected among them to indicate the flow of information and processing.

Basic Symbols used in Flowchart Designs

Terminal:



1. The oval symbol indicates Start, Stop and Halt in a program's logic flow.
2. A pause/halt is generally used in a program logic under some error conditions.
3. Terminal is the first and last symbols in the flowchart.

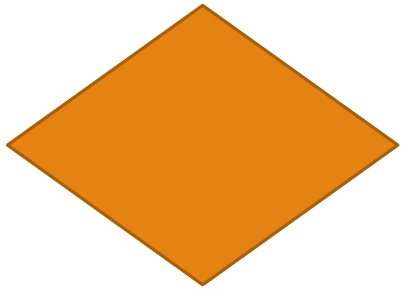
Input/Output:

1. A parallelogram denotes any function of input/output type.
2. Program instructions that take input from input devices and display output on output devices are indicated with parallelogram in a flowchart.

Processing

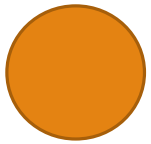
1. A box represents arithmetic instructions.
2. All arithmetic processes such as adding, subtracting, multiplication and division are indicated by action or process symbol.

Decision



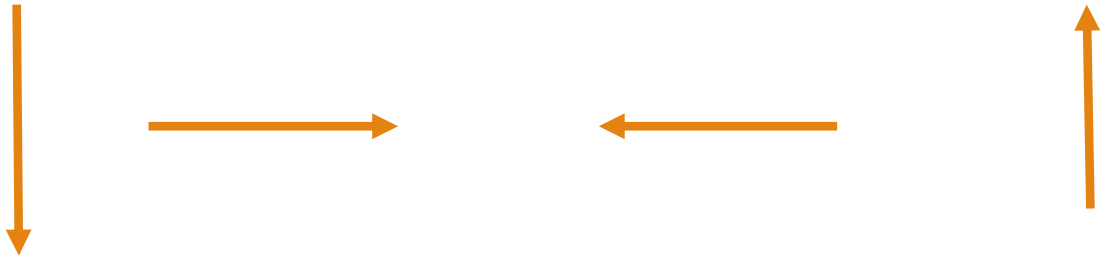
1. Diamond symbol represents a decision point.
2. Decision based operations such as yes/no question or true/false are indicated by diamond in flowchart.

Connectors



1. Whenever flowchart becomes complex or it spreads over more than one page, it is useful to use connectors to avoid any confusions.
2. It is represented by a circle.

Flow lines



1. Flow lines indicate the exact sequence in which instructions are executed.
2. Arrows represent the direction of flow of control and relationship among different symbols of flowchart.

Question 1

Who developed the C programming language?

A. Bjarne Stroustrup

B. James Gosling

C. Dennis Ritchie

D. Ray Boyce

Question 2

A name having a few letters, numbers and special character _(underscore) is called

A. keywords
B. reserved keywords
C. tokens
D. identifiers

Question 3

The size of a character variable in C is

A. 8 bytes
B. 4 bytes
C. 2 bytes
D. 1 byte

Question 4

By default a real number is treated as a

A. float
B. double
C. long double
D. integer

Question 5 : What is the output of the code

```
#include <stdio.h>
int main()
{
        int i = -3;
        int k = i % 2;
        printf("%d\n", k);
}
```

A. Compile time error
B. -1
C. 1
D. Implementation defined

Queries and Feedback