hi
History of C : Invented by Dennis Ritchie, 1972 at AT&T Bell labs
How c is invented
type of c language : middle level language : using pragma directive , we can include machine code into c code
high level : easier to write program, but translation required from human understanable to machine,
so execution is slower
low level : difficult to write program, bcoz it is in machine understable format, execution faster as
as no translation required.

Compiler : is a translator which translates human understable code into machine code and vice versa.
Complete code at a time..complete program at a time. part of system program.
Interpreter : IT is same like compiler, but what it will do, it will translate line by line of a code.

pragma : directive

algorithm : sequential representation of the instructions.

Flowchart : pictorial representation of the instructions. arrow, parallelogram, rectangle, diamond, start,

characters(256) : low case letter a to z 26 97 to 122
upper case A to Z 26 65 to 90
digits 0 to 9 48 to 57
special symbols
ASCII value : American Standard code for Information Interchange

Words : Tokens : Variables, constants, keywords, specifiers, Identifiers.

variable : Entity whose value is going to change throughout the execution of program.
eg. rno, age, name, address,

Constant : Entity whose value is not going to change throughout the execution of program.
eg. const pi=3.14, const g=9.8, const per=75

Keywords : Entity whose meaning is already informed to the compiler.
eg. for , while, switch, int, float, char // invalid declarations const for=90
invalid const while=80

Rules for creating variables :
i) Must start with alphabet
ii) Special symbol can be used is only _ , no other symbols can be used.
iii) Max length of variable could be from 8 character to utmost 32 character depending upon machine specification.

r_no, roll_no , e_no, rollno : valid
%rno, r*no, r-no, : invalid
age, a
name, nm , f_name, l_name : valid
f-name, $fname : invalid
address

Rules for creating constants :

i) Must start with alphabet
ii) Special symbol can be used is only _ , no other symbols can be used.
iii) Max length of variable could be from 8 character to utmost 32 character depending upon machine specification.

const pi=3.14, const g=9.8, const per=75 , const r_o_i = 10.56

Operators == compairing between left and right side values
= assigning the value to the left side varialbe

Statements : i) Type declarations statment
ii) Arithmatic Statement
iii) input/output statment
iv)Sequential Statment
v) Control statement.

i) Type Declaration Statement :
Datatype : type of the data. rno type of rno = 36,46,55,207606

int : 2 bytes	-32768 to 32767	int rno=20 , age, marks;
char : 1 bytes		char gender='m';
float : 4 bytes	-3.14 to 3.14 crores	float per, salary,
long : 4 bytes	-3.14 to 3.14 crores	long int eno= 2010406 , ecode
double : 8 bytes		double
long double : 10 bytes		long double

signed int	-32768 to 32767
unsigned int	0 to 65535
signed char	-128 to 127
unsigned char	0 to 255

```
int rno=20 , age, marks;
char gender='m';
float per, salary;
long int eno= 2010406;
```

```
int a=32767 , b=6 ;
long int c=a+b=32769 32768 32769(-32767)
 c=-32767
long int c=?=32713;
```

ii) Arithmatic statment : (((a+b)*(a+b))*(c+d))/(a+b)

iii)input/output statment :

c is again called as procedure oriented language.

scanf() : input function parenthesis // take input from the keyboard
printf() : output function // display msg on screen

General Structure of c program :
header files
main function
{
type declaration
output statement
input statment
arithmatic statment
output statment

```
termination of program.
}

# directive stdio.h -> standard input/output header file
                       include functions like get (), put(), scanf()
                        printf(), getc, putc,getchar()  getline,
                        putline , putchar()
            conio.h -> console input /output header file
                        include like getch() , clrscr()

            string.h -> strcmp, strrev, strcmpi, strlwr, strupr

            math.h, file.h, time.h, date.h
// explore more header files in help section or in tc/bin folder

declaring header files :
<stdio.h > -> conical brackets universal path
"stdio.h "   -> " showing current path to check the file

single line as comment give two forward slash like //
More than single line as comment, include that block in /* ---*/

#include<stdio.h>            //comment header file declaration
#include<conio.h>
void main()                 //program execution always start with main
{ /* int rno=21;
 clrscr();*/
 printf("Shivshakti");
 getch();
}


#include<stdio.h>            //comment header file declaration
#include<conio.h>
void main()                 //program execution always start with main
{
 printf("Good Afternoon! how r u");
 getch();
}

#include<stdio.h>            //comment header file declaration
#include<conio.h>
int main()                  //program execution always start with main
{                          // open curly bracket
 printf("Shivshakti");
 return 0;
}                          // close curly bracket

void main() : here void is return type, void means program or function
              is not returning any value.

int main() : here int is return type , what kind of value will
             be returned by main function. So, here main is
             returning int value
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_____________________________________________________________________

int rno=20 , age, marks;
char gender='m', marital_status;
float per, salary;
long int eno= 2010406;

Problem : Write a program to perform addition between two nos and
          store result in third no.
```

```
a 23+ b 43= c 66  // to store values we need variables.
 int a , b, c ;

**** format specifiers
int rno=20 , age, marks;              preferrably %d or  %u or  %i
char gender='m', marital_status;     %c
float per, salary;                   %f
long int eno= 2010406;               %d


General syntax of scanf statement is as below :
scanf("  format specifiers    ",     format string     );

Practice for scanf statment
scanf("%d%d",&a,&b);
scanf("%f",&salary);
scanf("%f%f",&per, &salary);

int rno;
char gender;
float per;
scanf("%d%c%f",&rno, &gender, &per); // to read rno, gender, per



#include<stdio.h>            //comment header file declaration
#include<conio.h>
int main()                  //program execution always start with main
{

int a , b, c ;              //type declaration statment
clrscr();
printf("Enter values for a and b \n"); // output statment displaying only text
scanf("%d%d",&a,&b);                //input statment
 c = a + b;                         //Arithmatic statment
printf(" the addition is =%d", c);        // want to display msg with value
return 0;
}

#include<stdio.h>            //comment header file declaration
#include<conio.h>
int main()                  //program execution always start with main
{

int a , b, c ;              //type declaration statment
//clrscr();
printf("Enter values for a and b \n"); // output statment displaying only text
scanf("%d%d",&a,&b);                //input statment
 c = a - b;                         //Arithmatic statment
printf(" the substraction is =%d", c);        // want to display msg with value
return 0;
}


Practice of printf statment :
The addition of 23 and 43 = 66
printf(" The addition of a and b = c ", a, b,c);
printf(" The addition of %d and %d = %d ", a, b,c);
```