C

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⟹ default

```c
#include <stdio.h>
#include <stdlib.h>
int main ()
{
   printf ("Hello");
  return 0;
}
```

⟹ we end each instruction with (;)
⟹ \n → new Line
⟹ printf → print something on the screen
⟹ // - /* */ ⟹ for Comments

⟹ Variables   Note: can't start with (_ , number)   _ is allowed but not at the start

اكثر من حرف array

```c
Char  characterVariable [] = "John";   → %S
int   numberVariable = 35;             → %d
```

↳ format specifier

⟹ special characters aren't allowed same goes for reserved words (int, ...)

How to use

```c
printf (" My name is %S \n", CharacterVariable);
printf (" My age is %d \n", numberVariable);
```

(%d) will be replaced by the variable

⟹ Data Types

- int ⟹ (%d) — integers
- float, double — Decimals ⟹ (%f) , %lf
  - Note: %f → printf , %lf → scanf
- char __ = ' ';
  حرف واحد ⟹ (%c)
- Char __ [] = " ";
  ↳ string of characters ⟹ (%S)

```c
printf(" %S %d", "Mariam", 500);
```

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⇒ Escape sequences

\n → new line
\t → Horizontal tab → move the cursor to the next tab
\a → Alert
\\ → Insert \ in a string
\" → Insert " in a string

⇒ Scanf ("%d", &integer1);

(&) → address operator

tells scanf the location or address in memory at which the variable is stored.

⇒ Math Functions #include <math.h>

pow(2, 3) → 2^3
Sqrt(36) → $\sqrt{36}$
Ceil(36.356) → 37 round number up
floor(36.656 → 36 round down

⇒ Arithmetic operators

+ , − , * , / , %
↳ remainder

→ Precedence → ( ) → * / % → + −
from left to Right ① ② ③

⇒ Equality or relational operators

↳ == ↳ > = ↳ assignment operator
!= <
>=
<=

⇒ Const int num; Creating Constants that can't be changed

get A String From the user

⇒ char name [20] ; → I need to specify a size

Scanf ("%s", name); ⇒ notice we didn't use &

printf ("%s", name);

↳ problem with Scanf
If I wrote John Smith It'll print John
Stops after encountring a Space

⇒ fgets (name, 20 , stdin);

↓ var. name

↓ How many characters do i want to accept

printf ("%s newline", name);

تطبع newline تلقائي بعد ال %s

output → John Smith
newline

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(5) Sequence of Numbers and sum   Codeforces

اول حاجة to handle m=n لو

```
If (m>n) {
   min=n ;
   max=m ;
   }
else {  min=m;
        max=n;}
```

كنت كاتبه if تانية ← else

تاني حاجة
While (1)
كنت عامله
while (m)
غلط

(6) Divisor easy ✓

(7) prime numbers #

n<2 → not prime

n==2 → is the only even prime ← we must check it before n%2==0

n%2==0 → not prime

```
for (int i=3 ; i<= sqrt(n) ; i+=2) {
      If (n% i == 0)
         Not prime
   }
```

⟹ The idea if n isn't prime it must have a factor less than or equal $\sqrt{n}$

⟹ we Start from 3 and increment by 2 Skipping all even numbers
Since all even numbers ar divisible by 2 already