Hello World

Templates

We might use **this** template to explains.

```c
#include <stdio.h>
int main(){

    return 0;
}
```

Variables

DATATYPE	STORES
`int`	Integer
`double`	Real Number
`char`	Single Charactor

Note: Variable is being used to stores values!

I/O

Input/Output

FUNCTION	USAGE
`printf()`	print out format to console
`scanf()`	scan format into variables

Note: To use these functions you must include `stdio.h` as header file.

Examples

```c
#include <stdio.h>
int main(){
    int n;
    scanf("%d", &n);
    printf("%d", n + 20);
    return 0;
}
```

If input is `12` the output might be `32`.

Conditionals Statements

We use `if` to check that condition is true.

```
1  if(condition){
2      // do something
3  }
```

Note: You can change `condition` to your own.

Operator of Conditions

We can use these operators in your condition.

OPERATOR	MEANINGS
`=`	equals
`>`	more than
`≥`	more than or equal
`<`	less than
`≥`	less than or equal

Example

```c
#include <stdio.h>
int main(){
    int n = 20;
    if(n < 20){
        printf("Yes");
    }
    else{
        printf("No");
    }
    return 0;
}
```

In this case, output might be `No`.

Loops

There are many types of loops

For Loops

```
1   for(initialize; condition; update){
2      // do something
3   }
```

While Loops

```
1   while(condition){
2      // do something
3   }
```

Loops(2)

Do While Loops

```
1    do{
2      // do something
3    }while(condition);
```

Note: In most of cases, we uses `for` loops.

Example

```c
#include <stdio.h>
int main(){
    int n = 25;
    for(int i=20; i <= n; ++i){
        printf("%d\n", i);
    }
    return 0;
}
```

In this case, output might be:

```
20
21
22
23
24
25
```

1

```c
#include <stdio.h>
int main(){
    int n = 20;
    for(int i=1; i<=n; ++i){
        printf("%d\n", i);
    }
    for(int i=1; i<=n; ++i){
        for(int j=1; j<=n; ++j)
            printf("*");
    }
    return 0;
}
```

2

```c
#include <stdio.h>
int main(){
    int n;
    scanf("%d", &n);
    for(int i=1; i<=n; ++i){
        for(int j=1; j<=n; ++j){
            printf("%c", (i == 1 || i == n || j == 1 || j == n) ? '#': '*');
        }
        printf("\n");
    }
    return 0;
}
```

3

```c
#include <stdio.h>
int main(){
    int n = 20;
    for(int i=n; i>=1; --i){
        printf("%d\n", i);
    }
    printf("%d", n + 20);
    if(n == 29){
        printf("90");
    }
    return 0;
}
```