**Loop**

Loop used to avoid typing the code multiple times , Examples :

 #include <stdio.h>

 #include <cs50.h>

  int main (void){

     printf("hello");

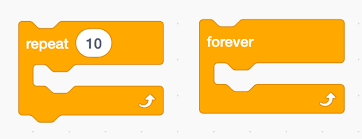
     printf("hello");

     printf("hello");

  }

But if i tell to repeat Printf() 1000 time , so Here you must use loop because it hard to write printf()1000 times + the programmer will be big and heavy .

* As we see in scratch , we have to type of loop Forever and Repeat



In C language we have many form (form not types) of loops , between them we find :

Whille

 #include <stdio.h>

 #include <cs50.h>

  int main (void){

     while(1<3){

      printf("Hello,World \n");

     }

  }

While(bolean expression) 🡺bolean expression is a thing that will be applied or not , either will return true or false . in this case boolean expression always will retrun true (because 1<3), so this is a forever loop , because always will be 1 smaller that 3 this is a fact , so always boolean will return true .

We can write directly in {} true or false , like we have in the expression

 while(true){

      printf("Hello,World \n");

     }

 #include <stdio.h>

 #include <cs50.h>

  int main (void){

  int i=0;

  while(i<4){

      printf("Hello,World \n");

      i++;

           }

  }

I=0 so the first the boolean expression will retrun true , after that i=1 (because i++ that increase the value by 1) , here also will return true , after 4 times i=4 here the boolean expression will return false becuase 4 isnt smaller than 4 . Dont’t forget to dreclare variable i and give it value ‘0’ .

For Loop

 #include <stdio.h>

 #include <cs50.h>

  int main (void){

 for(int i=0; i<3; i++){

   printf("hello,world \n");

 }

  }

The diffrence between while and loop is : We declare the variable in {} and we increase the value by 1 in {} also .

And sure we can use for and increse value with the loop code , Note ; i isn’t a variable but it’s an argument .

**In For Loop it’s necessary to increase the value of argument, either in {} or in loop body !!**

 #include <stdio.h>

 #include <cs50.h>

  int main (void){

 for(int i=0;i<5;i+=0){

   printf("hello,world \n");

 }

  }

**This is how to make for loop forever**

Note : don’t forget to seperate the tree component in for{} by semi-colon , if you have 2 component give the last one ‘ ;’

  The result is :

Hello,world

  Hello,world

  Hello,world

  Hello,world

 #include <stdio.h>

 #include <cs50.h>

  int main (void){

 for(int i=0;i<5;){

   printf("hello,world \n");

   i+=0;

 }

  }

The result is :

Hello,world

  Hello,world

  Hello,world

  i+=1;

**Do-While**

Do-While is a loop like the others loop , but here we have an exception :

 #include <stdio.h>

 #include <cs50.h>

  int main (void){

     int count;

    do{

     count =get\_int("count: ");}

    while(count<1);

     for(int i=0; i<count; i++){

       printf("?");

      }

   printf("\n");

  }

Do-while is a loop that will work the first time without saying the condition , but the second time it’s will become like the other loop .

Note : always we declare the variable out of the loop , because if we declare it in the loop , we will get error ‘ Redeclare’

Dont’t forget to put semi-colom after while .