Dart Programming Language Essentials:

Diving into Dart Syntax and Core Concepts

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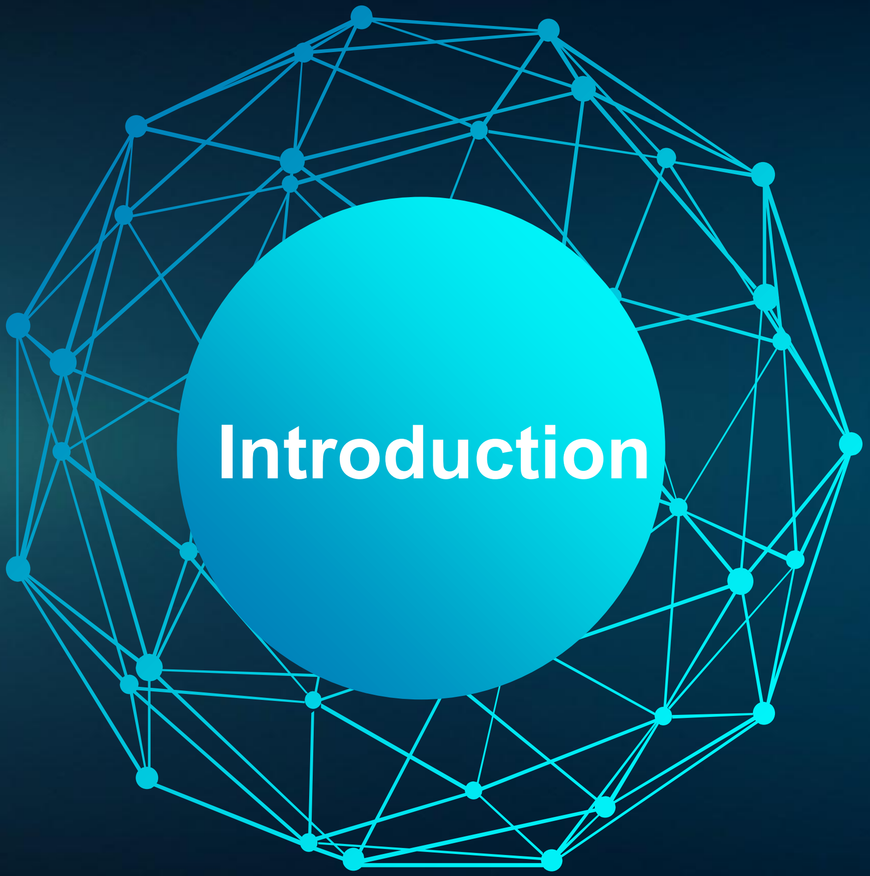
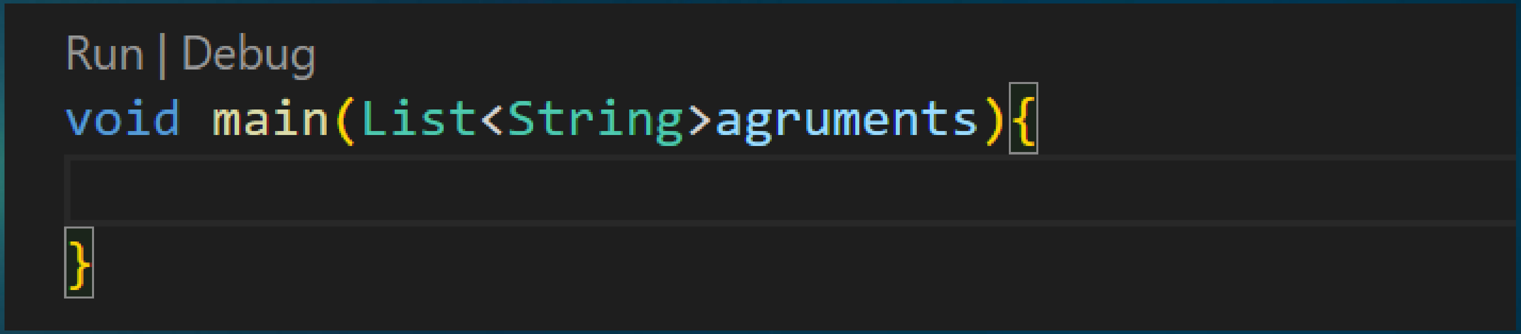


Introduction

- Dart is a flexible programming language. It is open-source and used for creating web applications.
- It is object-oriented, dynamically typed, and compiled ahead-of-time (AOT).
- Overview of Dart programming language and its significance
- Dart is widely used for web development, mobile app development, and server-side programming.

Dart Syntax

After the creation of the project, the project will start from the function main()



```
Run | Debug
void main(List<String>agruments){

}
```

Programming must only start from that curly brackets({}).

Dart Syntax Fundamentals

- Variables in Dart are used to store data. They are declared using the 'var' keyword followed by the variable name.

- Dart offers various data types, including numbers,strings, booleans,double and lists etc.

- Operators perform operations on data;Dart has arithmetic operators ,Relational Operators AssignmentOperators,UnaryOperators , and logical operators.

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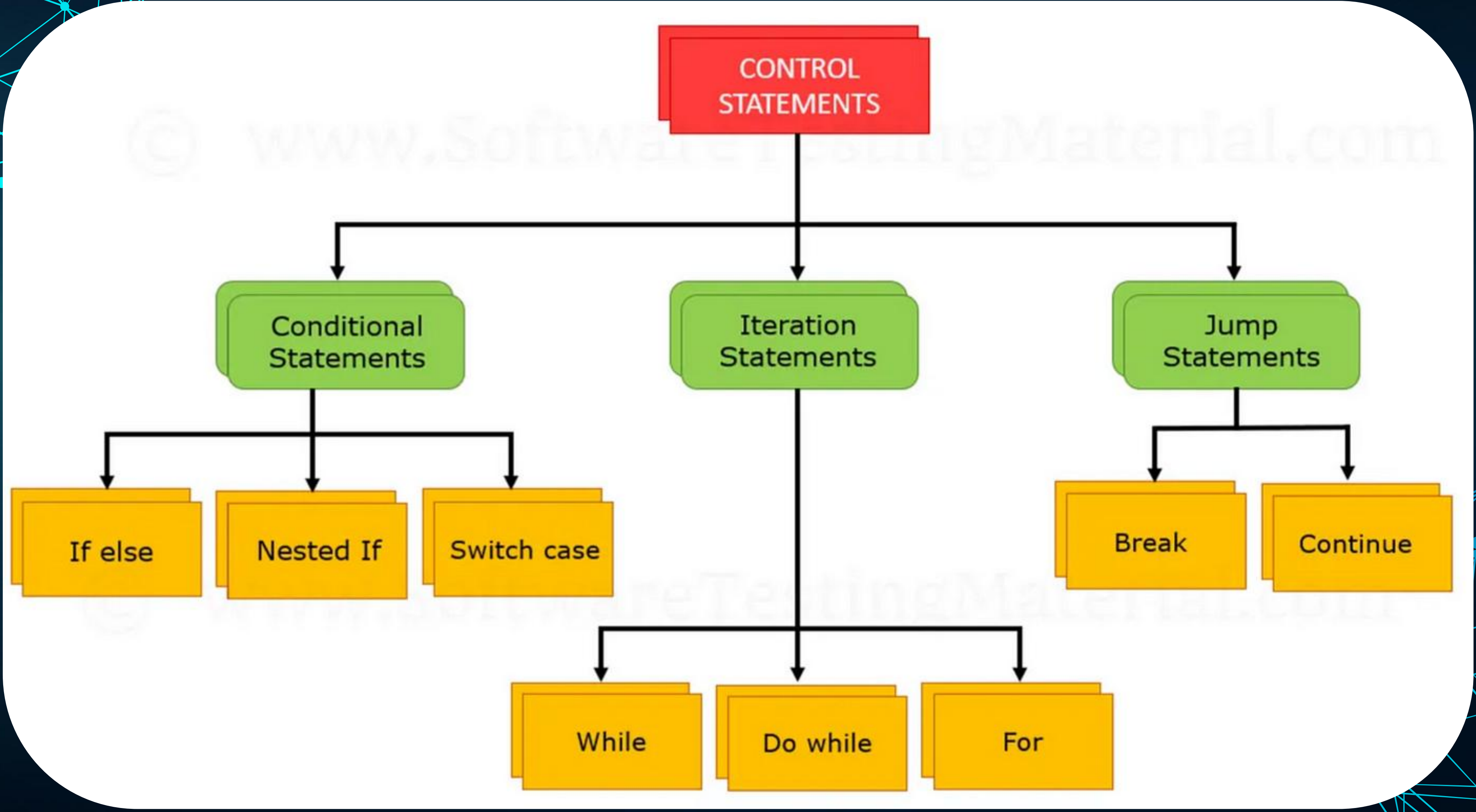
Date types

Data Type	Definition	Example
Int	Numbers	Int x = 5;
Double	Number with decimal value	double = 0.5;
String	A sequence of characters	String x = “Hello World”;
Booleans	Method of telling if an expression is true or false.	bool x = true; bool y = false;
List	An object to store more than one value	List pets = [“cat”,”Dog”,”Bird”];

Maps	An object to store more than one value	Map fruits = {
		‘apple’ : 1,
		‘banana’ : 2,
		‘orange’ :3, }

Control Statement



CONTROL STATEMENTS

Conditional Statements

- If else
- Nested If
- Switch case

Iteration Statements

- While
- Do while
- For

Jump Statements

- Break
- Continue

Selection Statement (Conditional)

- Selection statement allow you to control the flow of the program during the runtime in the basis of outcome of an expression or by state of a variable.

Eg:

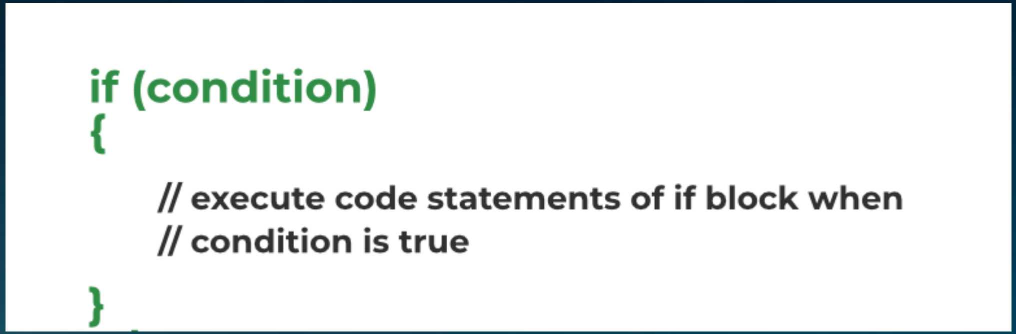
If a application needs to know whether a user is male or female by giving the user two choices ie male or female, after the user response how would the application will know?

There are two types of Selection(or condition) statements:

- If ...else if..else..
- Switch.. case..

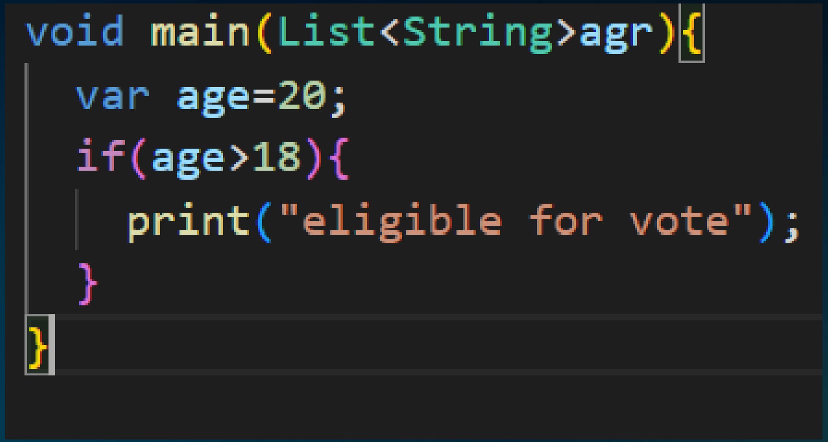
If

syntax:



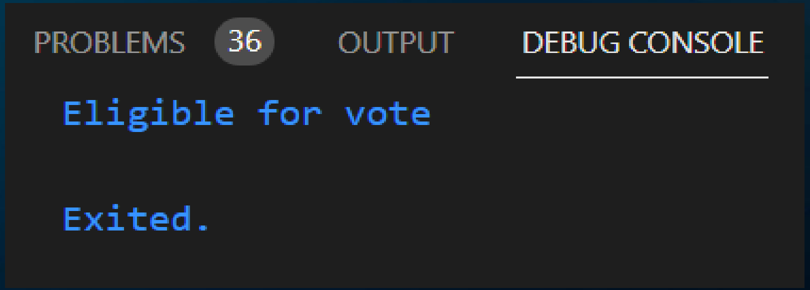
```
if (condition)
{
     // execute code statements of if block when
     // condition is true
}
```

Example:



```
void main(List<String>agr){
  var age=20;
  if(age>18){
    print("eligible for vote");
  }
}
```

Output:

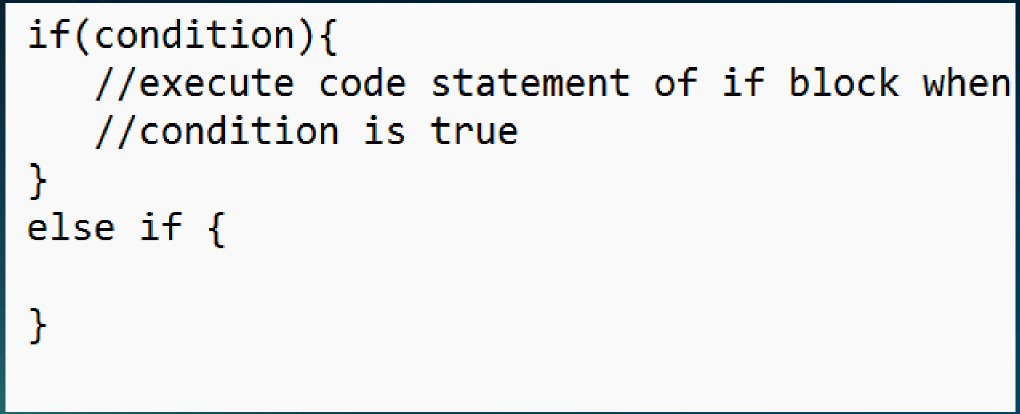


```
Eligible for vote

Exited.
```

If...else if..

syntax:

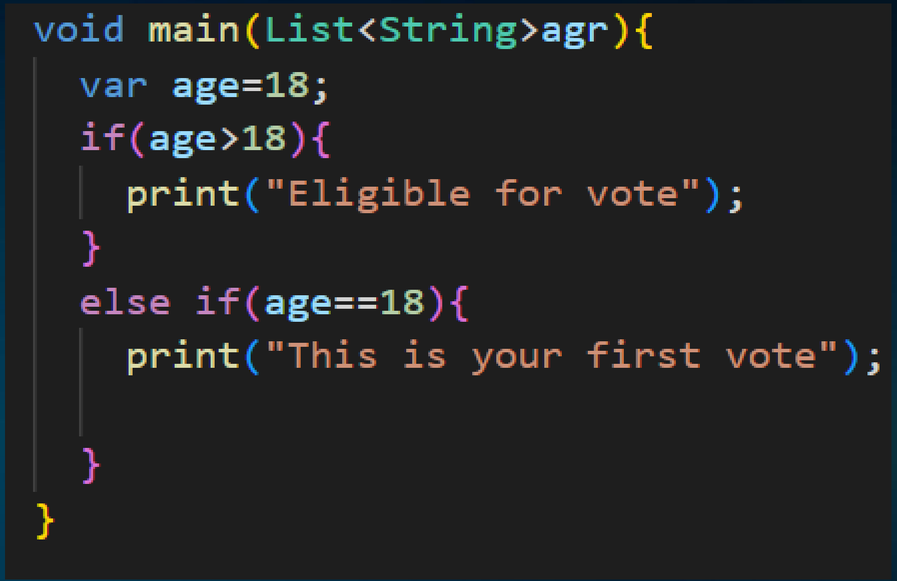


```
if(condition){
   //execute code statement of if block when
   //condition is true
}
else if {

}
```

else if: through this statement we can specify as much conditions as we want and execute the code only when the condition is true. (This statement will only checked or comes after if statement or else if.)

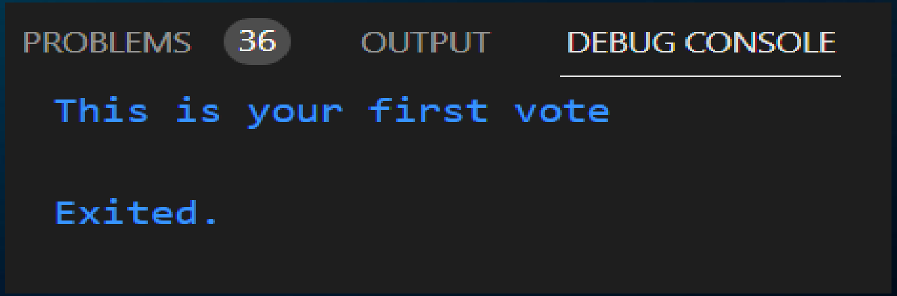
Example:



```
void main(List<String>agr){
  var age=18;
  if(age>18){
    print("Eligible for vote");
  }
  else if(age==18){
    print("This is your first vote");

  }
}
```

Output:

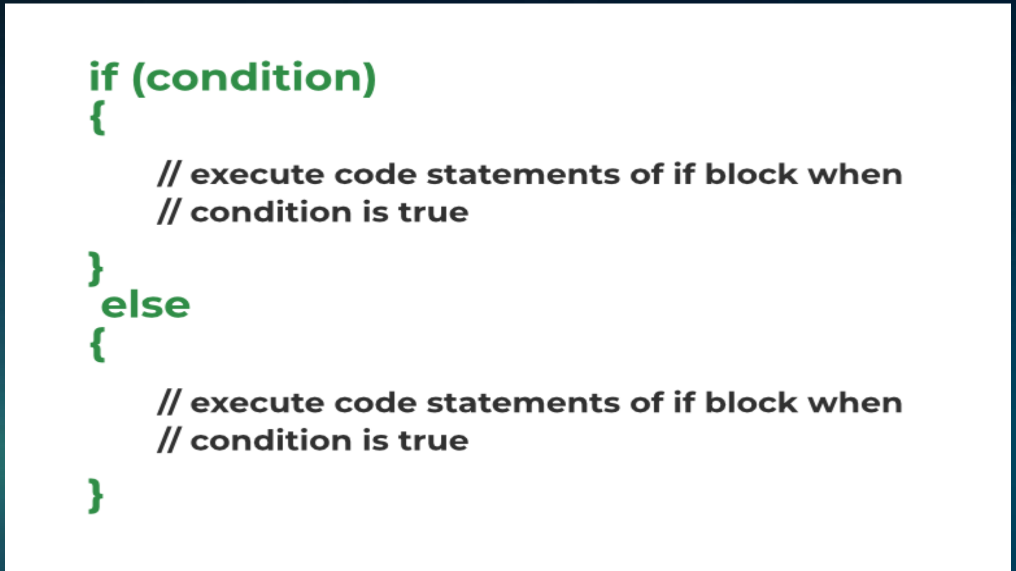


```
This is your first vote

Exited.
```

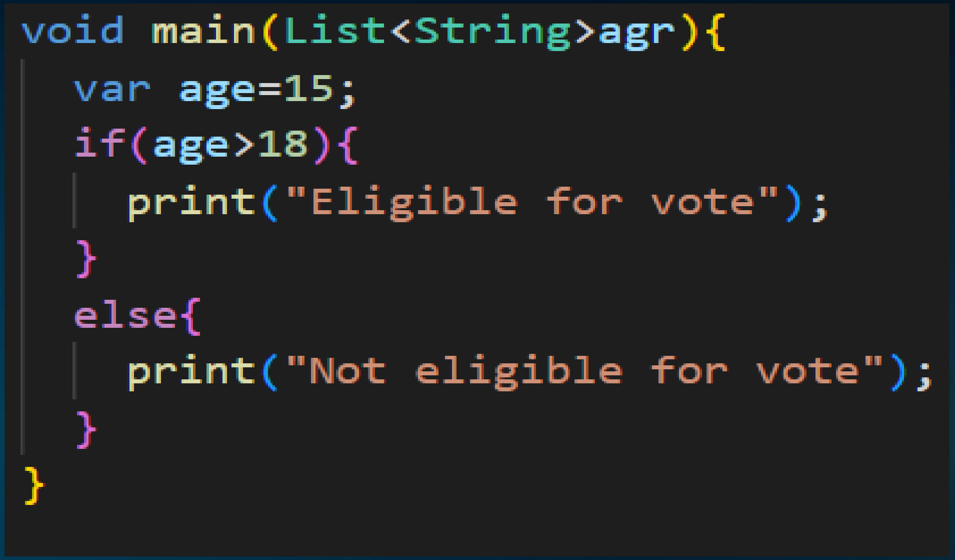
If ...else

syntax:



```
if (condition)
{
      // execute code statements of if block when
      // condition is true
}
 else
{
      // execute code statements of if block when
      // condition is true
}
```

Example:

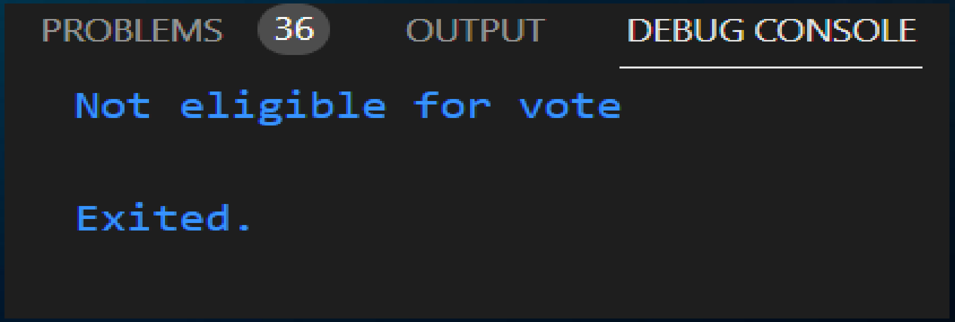


```
void main(List<String>agr){
  var age=15;
  if(age>18){
    print("Eligible for vote");
  }
  else{
    print("Not eligible for vote");
  }
}
```

If: statement allows a block of code to be executed when the specified condition is true.

else: else statement code will only be executed when the conditions on if and else if got false.

Output:



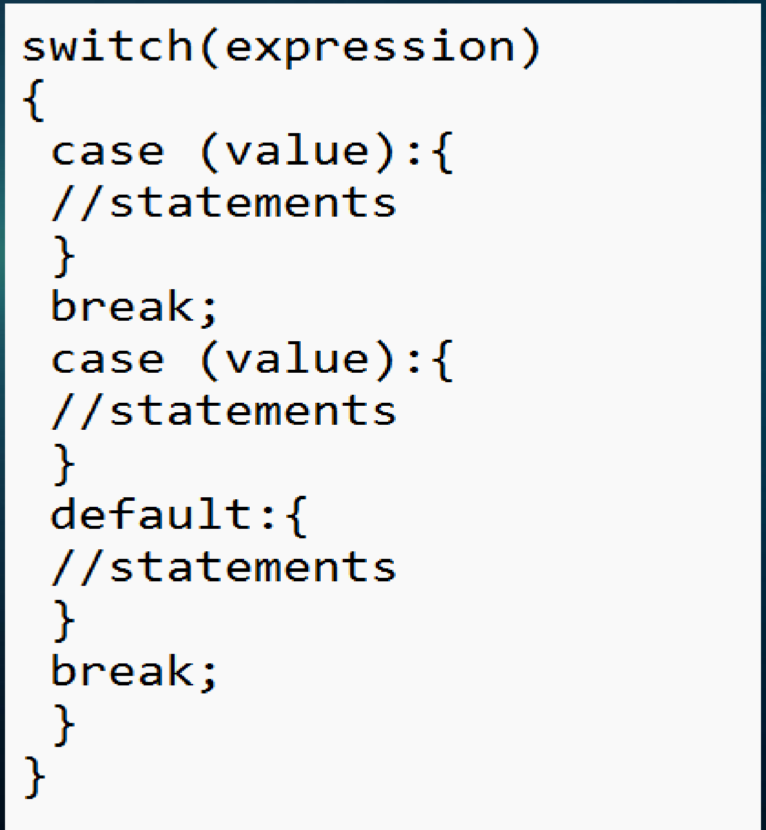
```
Not eligible for vote

Exited.
```

Switch...case

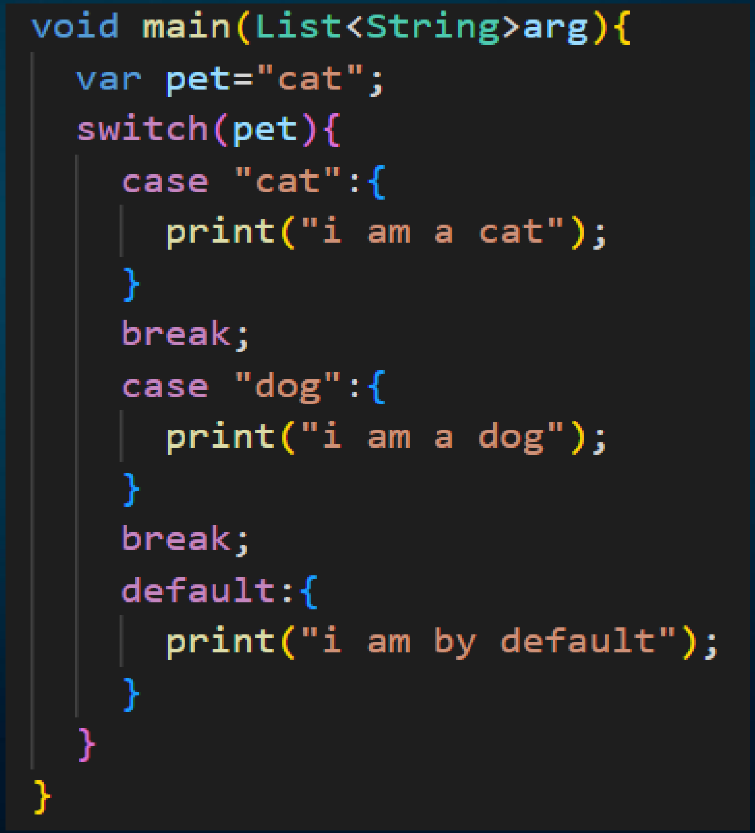
Switch case statement is simplified form if else statement, it helps to avoid long chain of if...else if...else statements.

syntax:



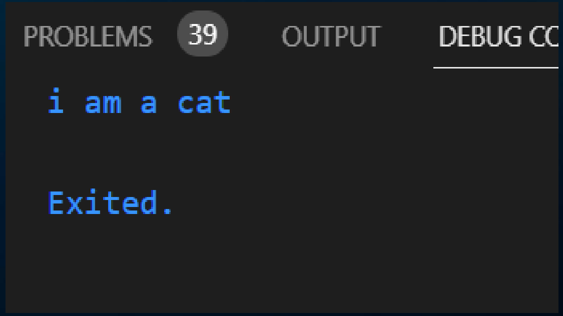
```
switch(expression)
{
 case (value):{
 //statements
 }
 break;
 case (value):{
 //statements
 }
 default:{
 //statements
 }
 break;
 }
}
```

Example:



```
void main(List<String>arg){
  var pet="cat";
  switch(pet){
    case "cat":{
      print("i am a cat");
    }
    break;
    case "dog":{
      print("i am a dog");
    }
    break;
    default:{
      print("i am by default");
    }
  }
}
```

Output



```
i am a cat

Exited.
```

Iteration statement (loop)

- Iteration statements are used to execute the block of code repeatedly for a specified time or until it meets the specified condition.

There are three types of iteration statements:

- while
- do while
- for

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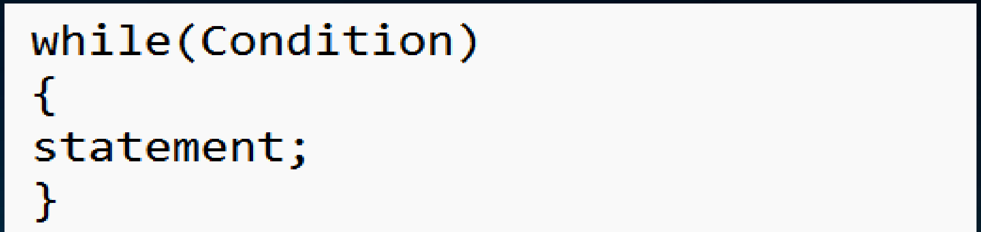
while

- The while loop will execute a block of statements as long as the specified condition is true.

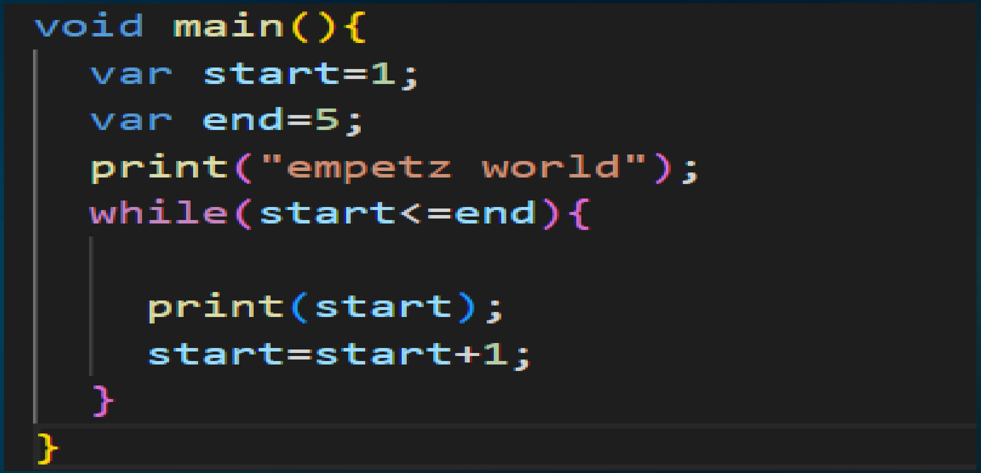
- The while loop is useful, when the number of time we want to repeat the execution of the code is unknown beforehand.

Syntax:



```
while(Condition)
{
statement;
}
```

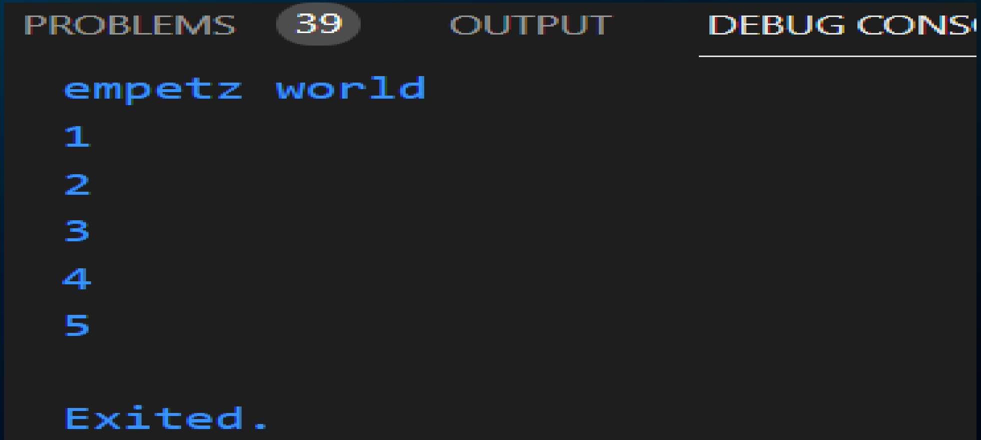
Example:



```
void main(){
  var start=1;
  var end=5;
  print("empetz world");
  while(start<=end){

    print(start);
    start=start+1;
  }
}
```

Output:



```
empetz world
1
2
3
4
5

Exited.
```

do while

- The do while loop executes the code and checks whether the condition is true.The do while loop repeats as much as the condition is true.

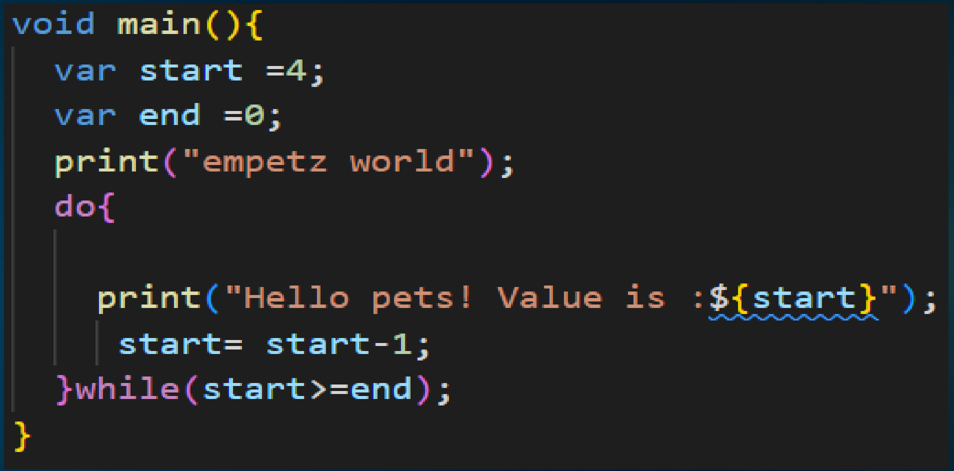
- The only difference between do while and while loop is that,

- While loop check the condition and executes the code, do while executes the code and checks the condition.

Syntax:

```
do{
 statement(s)to be executed;
}while(expression);
```

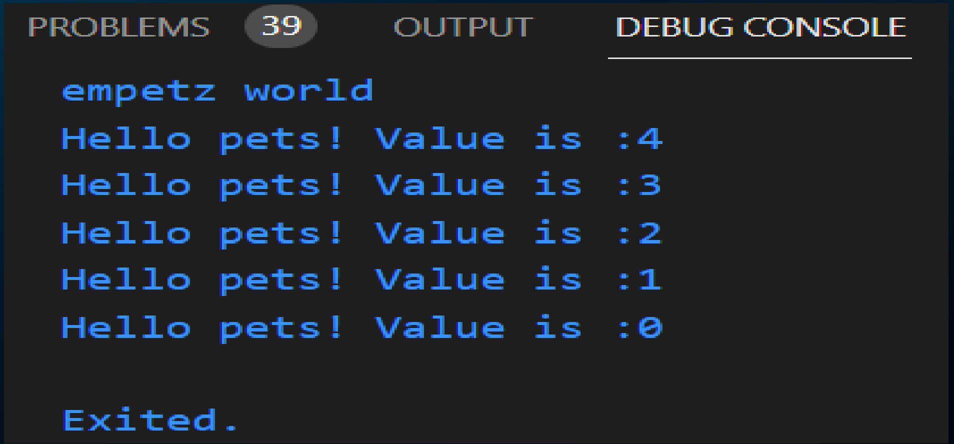
Example:



```
void main(){
  var start =4;
  var end =0;
  print("empetz world");
  do{

    print("Hello pets! Value is :${start}");
     start= start-1;
  }while(start>=end);
}
```

Output:



```
empetz world
Hello pets! Value is :4
Hello pets! Value is :3
Hello pets! Value is :2
Hello pets! Value is :1
Hello pets! Value is :0

Exited.
```

for

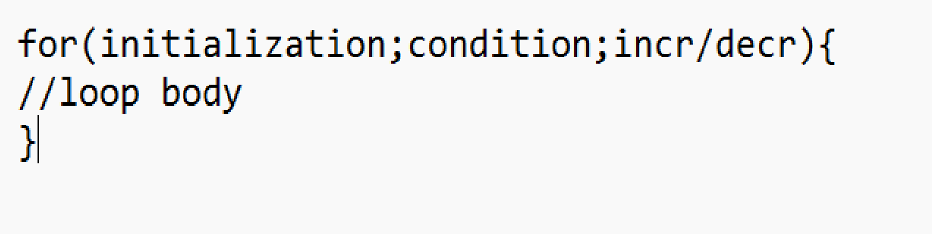
For loop is divided into two types

- For
- For in

Early, we discussed about storing more than one values in a variable(List),
So, how can we store and retrieve multiple values into that variable ?
So for that we use For loop.

for

syntax:



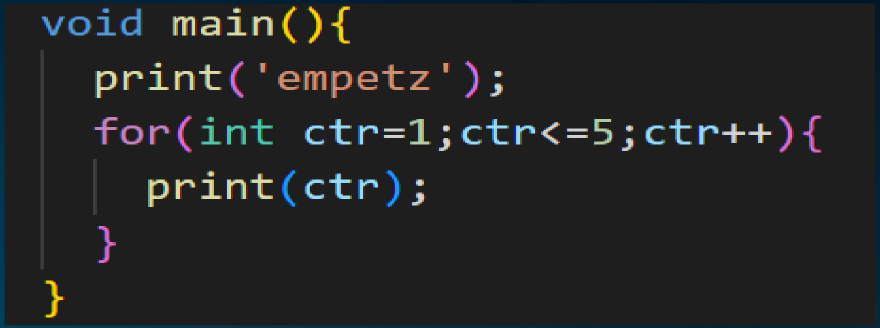
```
for(initialization;condition;incr/decr){
//loop body
}
```

Initialization: Starting of a loop

Condition: Ending of a loop

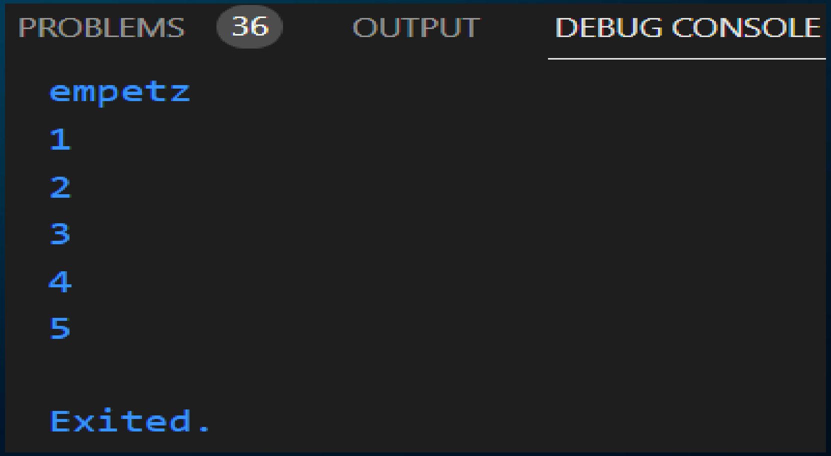
Incr/decr: Increment or decrement

Example:



```
void main(){
  print('empetz');
  for(int ctr=1;ctr<=5;ctr++){
    print(ctr);
  }
}
```

Output:



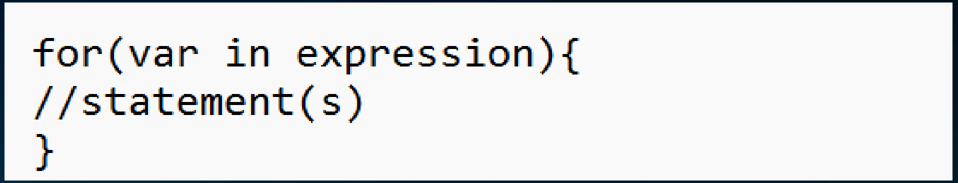
```
empetz
1
2
3
4
5

Exited.
```

for...in

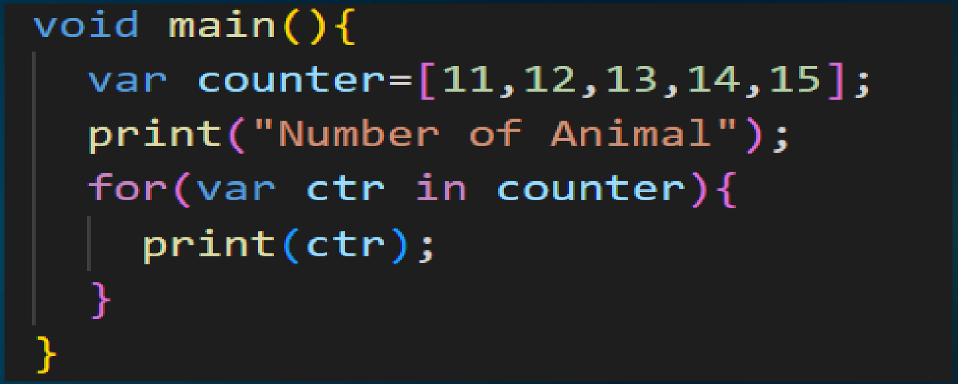
- For loop is only applied with the variable that is holding more that one value.
- For … in loop will handle each value with the tasks we want to operate with that value.
- For… in loop is as much same as For loop but has some difference.

syntax:



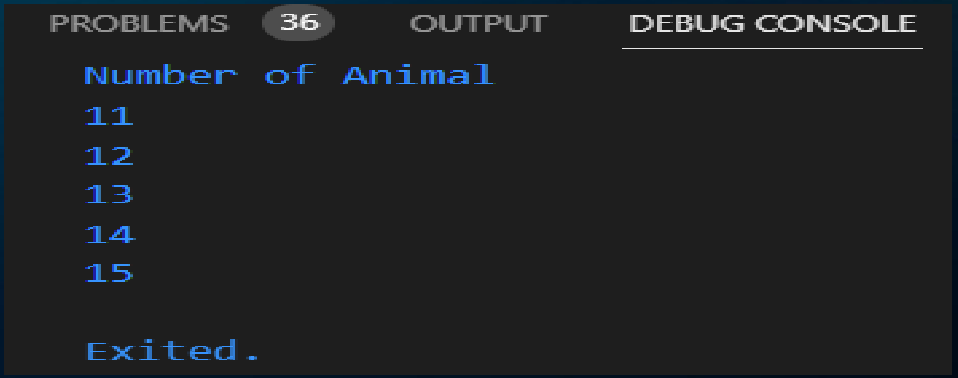
```
for(var in expression){
//statement(s)
}
```

Example:



```
void main(){
  var counter=[11,12,13,14,15];
  print("Number of Animal");
  for(var ctr in counter){
    print(ctr);
  }
}
```

Output:



```
Number of Animal
11
12
13
14
15

Exited.
```