Plant UML

PlantUML 은 다이어그램을 빠르게 작성하기 위한 오픈 소스 프로젝트입니다.

Activity 다이어그램

기존의 activity diagram 문법 은 몇몇 제약과 단점이 있다.(예를 들면, 유지보수가 어렵다.)

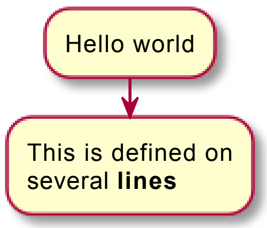
그래서 완전 새로운 문법과 구현이 베타버전으로 고안되었고, 우리는 더 나은 포맷과 문법으로 정의할 수 있었다.
이 새로운 구현의 또 다른 장점은 (시퀀스 다이어그램과 같이) Graphviz를 설치할 필요 없이 수행된다는 것이다.

새로운 구문이 이전 구문을 대체할 것이다. 그러나 호환성을 보장하기 위해 이전 구문이 여전히 인식될 것이다.
새로운 구문으로 이전을 권장한다.

Simple action

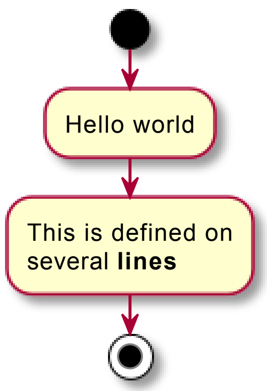
Activities label starts with `:` and ends with `;`.
Text formatting can be done using creole wiki syntax.
They are implicitly linked in their definition order.

```
@startuml
:Hello world;
:This is defined on
several **lines**;
@enduml
```



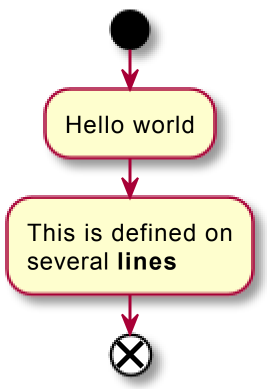
You can use `start` and `stop` keywords to denote the beginning and the end of a diagram.

```
@startuml
start
:Hello world;
:This is defined on
several **lines**;
stop
@enduml
```



You can also use the `end` keyword.

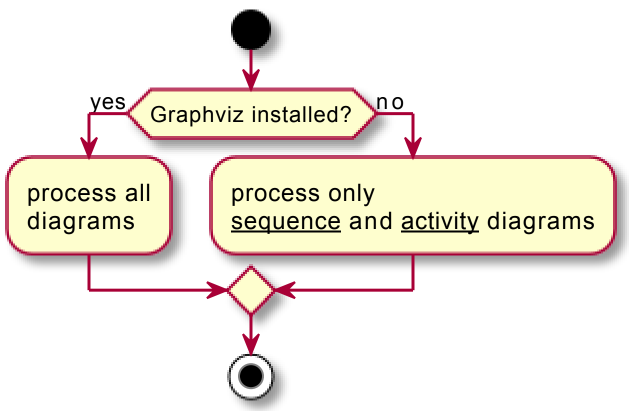
```
@startuml
start
:Hello world;
:This is defined on
several **lines**;
end
@enduml
```



Conditional

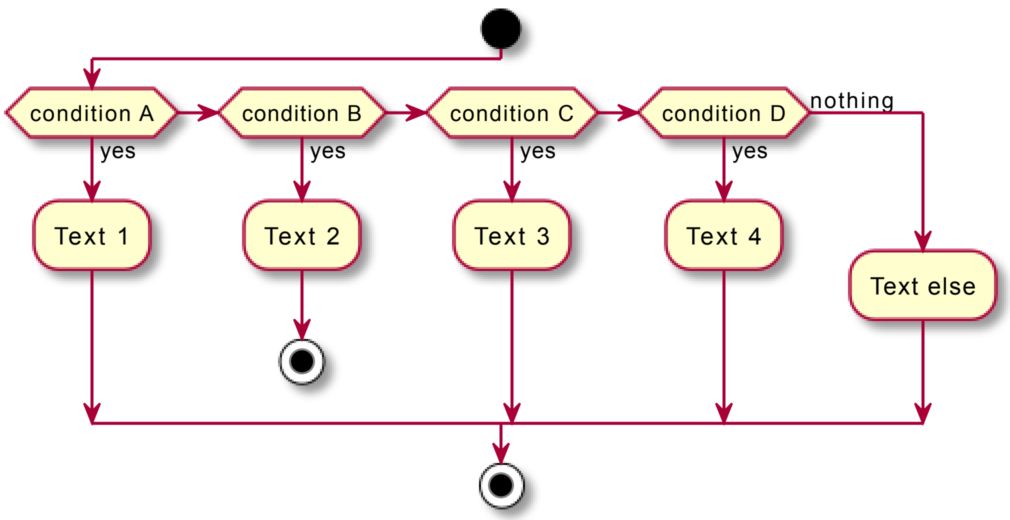
You can use `if`, `then` and `else` keywords to put tests if your diagram. Labels can be provided using parentheses.

```
@startuml

start

if (Graphviz installed?) then (yes)
  :process all\ndiagrams;
else (no)
  :process only
  __sequence__ and __activity__ diagrams;
endif

stop

@enduml
```



You can use the `elseif` keyword to have several tests :

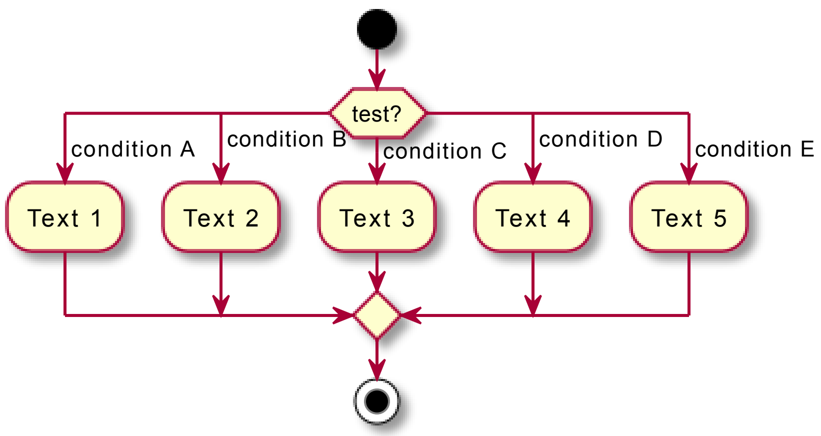
```
@startuml
start
if (condition A) then (yes)
  :Text 1;
elseif (condition B) then (yes)
  :Text 2;
  stop
elseif (condition C) then (yes)
  :Text 3;
elseif (condition D) then (yes)
  :Text 4;
else (nothing)
  :Text else;
endif
stop
@enduml
```



Switch and case [switch, case, endswitch]

You can use `switch` , `case` and `endswitch` keywords to put switch in your diagram.
Labels can be provided using parentheses.

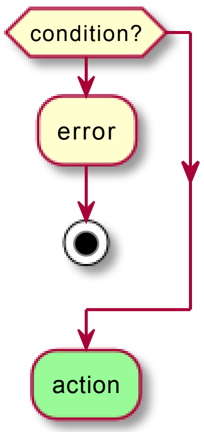
```
@startuml
start
switch (test?)
case ( condition A )
  :Text 1;
case ( condition B )
  :Text 2;
case ( condition C )
  :Text 3;
case ( condition D )
  :Text 4;
case ( condition E )
  :Text 5;
endswitch
stop
@enduml
```



Conditional with stop on an action [kill, detach]

You can stop action on a if loop.

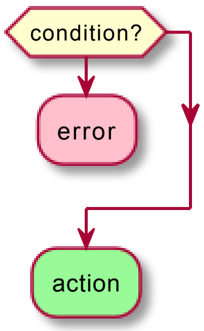
```
@startuml
if (condition?) then
  :error;
  stop
endif
#palegreen:action;
@enduml
```



But if you want to stop at the precise action, you can use the `kill` or `detach` keyword:

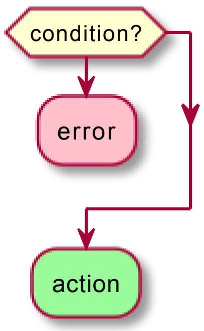
- `kill`

```
@startuml
if (condition?) then
  #pink:error;
  kill
endif
#palegreen:action;
@enduml
```



- `detach`

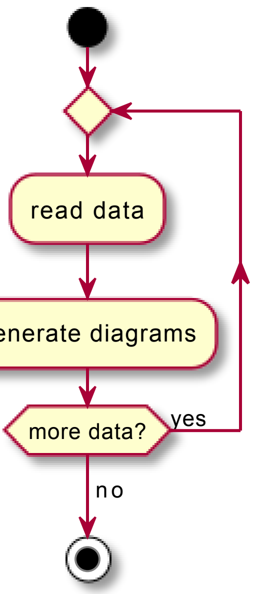
```
@startuml
if (condition?) then
  #pink:error;
  detach
endif
#palegreen:action;
@enduml
```



Repeat loop

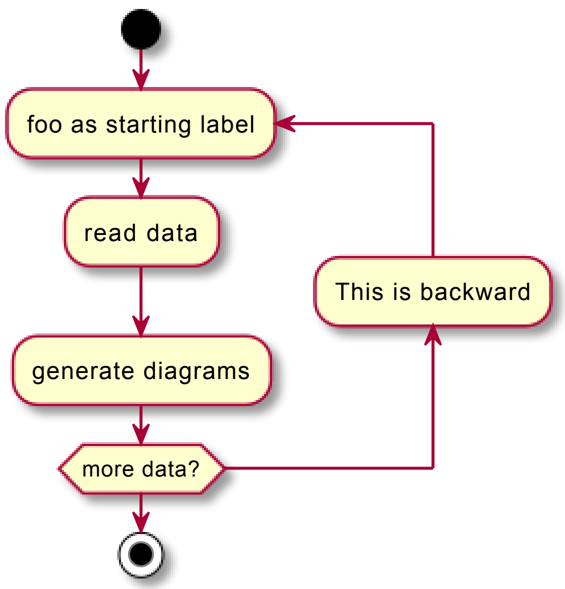
You can use `repeat` and `repeatwhile` keywords to have repeat loops.

```
@startuml

start

repeat
  :read data;
  :generate diagrams;
repeat while (more data?) is (yes)
->no;
stop

@enduml
```



It is also possible to use a full action as `repeat` target and insert an action in the return path using the `backward` keyword.

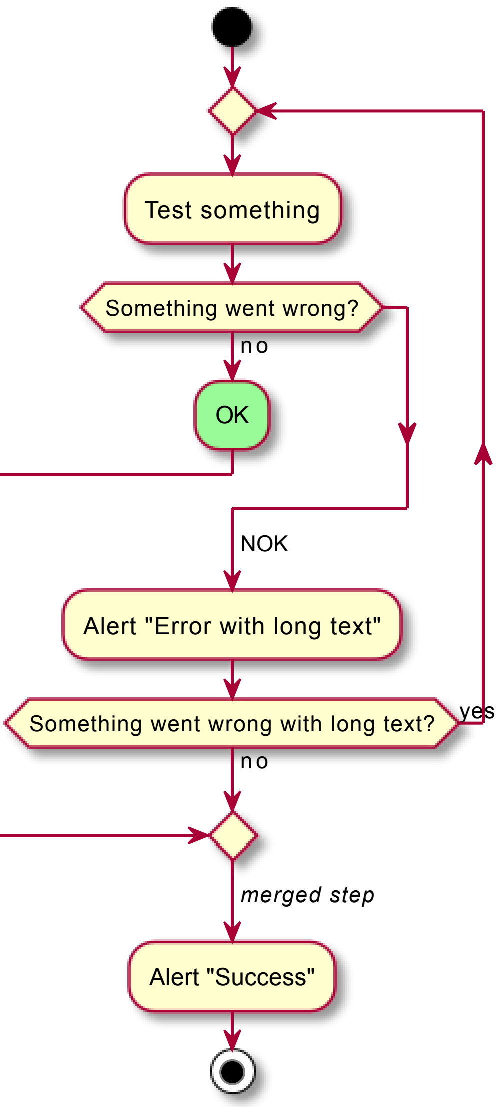
```
@startuml

start

repeat :foo as starting label;
  :read data;
  :generate diagrams;
backward:This is backward;
repeat while (more data?)

stop

@enduml
```



Break on a repeat loop [break]

You can use the `break` keyword after an action on a loop.

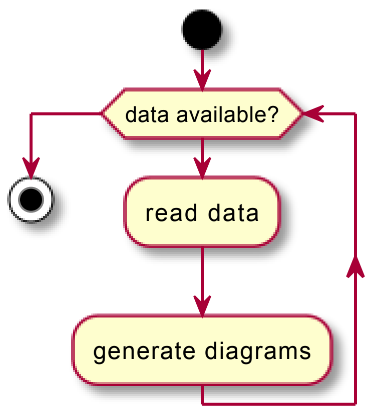
```
@startuml
start
repeat
  :Test something;
    if (Something went wrong?) then (no)
      #palegreen:OK;
      break
    endif
    ->NOK;
    :Alert "Error with long text";
repeat while (Something went wrong with long text?) is (yes) not (no)
->//merged step//;
:Alert "Success";
stop
@enduml
```



While loop

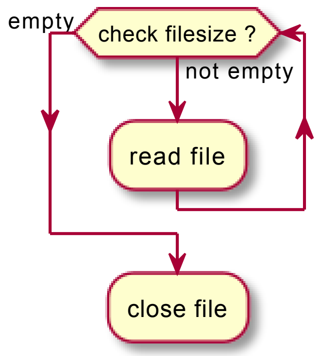
You can use `while` and `endwhile` keywords to have repeat loops.

```
@startuml

start

while (data available?)
  :read data;
  :generate diagrams;
endwhile

stop

@enduml
```



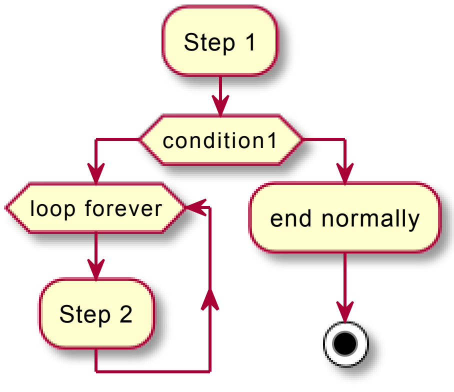
It is possible to provide a label after the `endwhile` keyword, or using the `is` keyword.

```
@startuml
while (check filesize ?) is (not empty)
  :read file;
endwhile (empty)
:close file;
@enduml
```



If you are using `detach` to form an infinite while loop, then you will want to also hide the partial arrow that results using `-[hidden]->`

```
@startuml
:Step 1;
if (condition1) then
  while (loop forever)
   :Step 2;
  endwhile
  -[hidden]->
  detach
else
  :end normally;
  stop
endif
@enduml
```

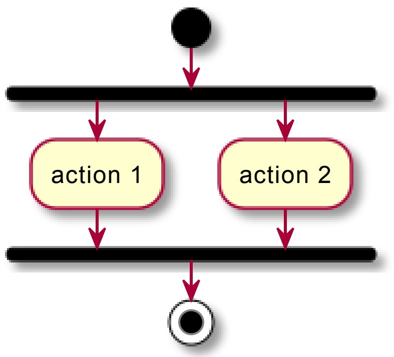


Parallel processing [fork, fork again, end fork, end merge]

You can use `fork`, `fork again` and `end fork` or `end merge` keywords to denote parallel processing.

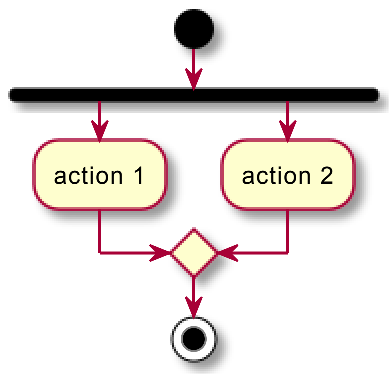
Simple `fork`

```
@startuml
start
fork
  :action 1;
fork again
  :action 2;
end fork
stop
@enduml
```

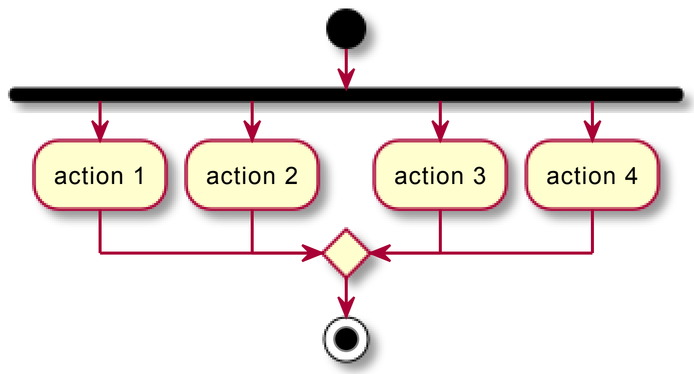


`fork` with end merge

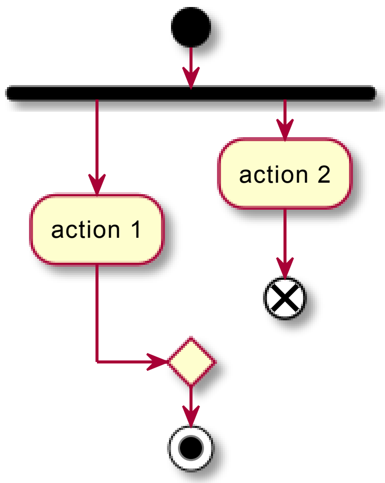
```
@startuml
start
fork
  :action 1;
fork again
  :action 2;
end merge
stop
@enduml
```



```
@startuml
start
fork
  :action 1;
fork again
  :action 2;
fork again
  :action 3;
fork again
  :action 4;
end merge
stop
@enduml
```

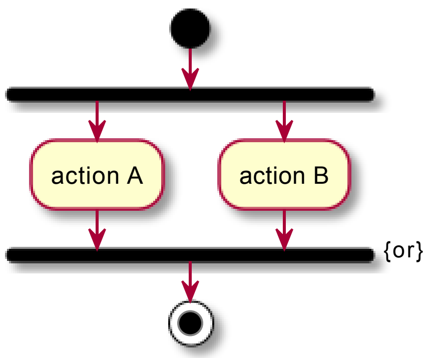


```
@startuml
start
fork
  :action 1;
fork again
  :action 2;
  end
end merge
stop
@enduml
```

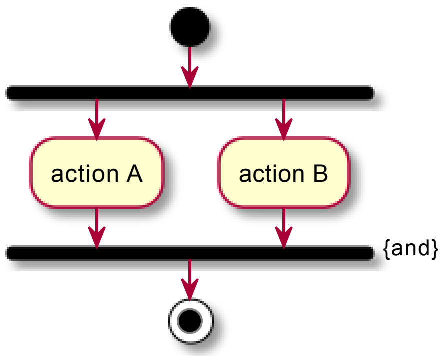


Label on `end fork` (or UML joinspec):

```
@startuml
start
fork
  :action A;
fork again
  :action B;
end fork {or}
stop
@enduml
```

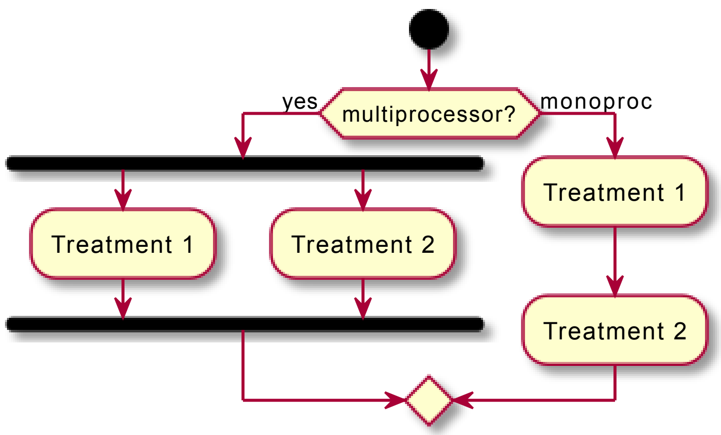


```
@startuml
start
fork
  :action A;
fork again
  :action B;
end fork {and}
stop
@enduml
```



Other example

```
@startuml

start

if (multiprocessor?) then (yes)
  fork
    :Treatment 1;
  fork again
    :Treatment 2;
  end fork
else (monoproc)
  :Treatment 1;
  :Treatment 2;
endif

@enduml
```

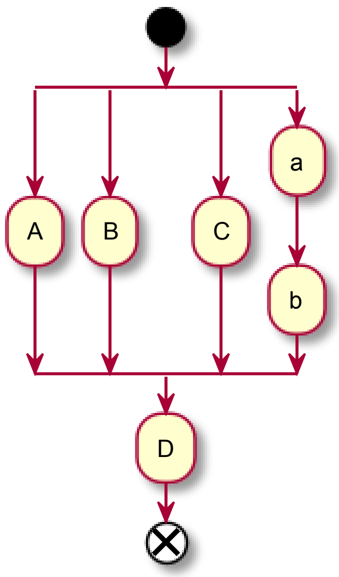


Split processing

Split

You can use `split`, `split again` and `end split` keywords to denote split processing.

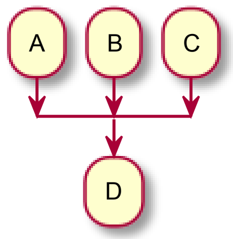
```
@startuml
start
split
   :A;
split again
   :B;
split again
   :C;
split again
   :a;
   :b;
end split
:D;
end
@enduml
```



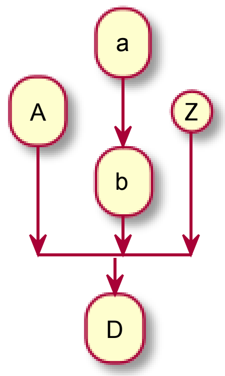
Input split (multi-start)

You can use `hidden` arrows to make an input split (multi-start):

```
@startuml
split
   -[hidden]->
   :A;
split again
   -[hidden]->
   :B;
split again
   -[hidden]->
   :C;
end split
:D;
@enduml
```



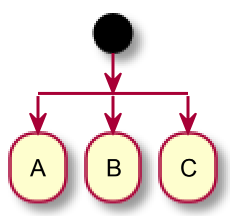
```
@startuml
split
   -[hidden]->
   :A;
split again
   -[hidden]->
   :a;
   :b;
split again
   -[hidden]->
   (Z)
end split
:D;
@enduml
```



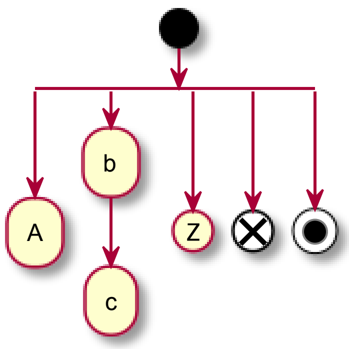
Output split (multi-end)

You can use `kill` or `detach` to make an output split (multi-end):

```
@startuml
start
split
   :A;
   kill
split again
   :B;
   detach
split again
   :C;
   kill
end split
@enduml
```



```
@startuml
start
split
   :A;
   kill
split again
   :b;
   :c;
   detach
split again
   (Z)
   detach
split again
   end
split again
   stop
end split
@enduml
```

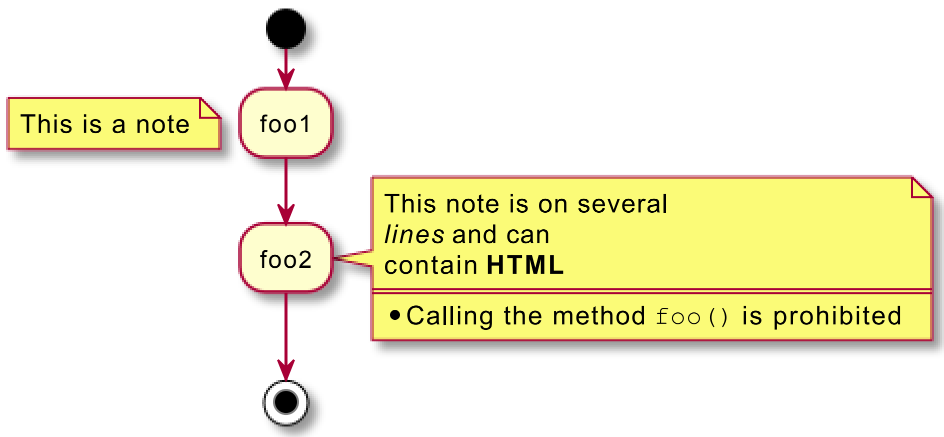


Notes

Text formatting can be done using creole wiki syntax.

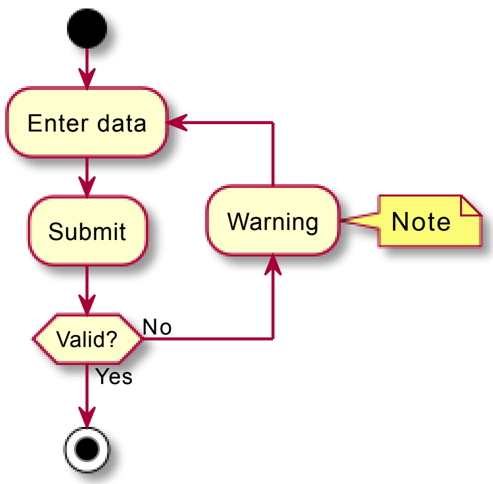
A note can be floating, using `floating` keyword.

```
@startuml

start
:foo1;
floating note left: This is a note
:foo2;
note right
  This note is on several
  //lines// and can
  contain <b>HTML</b>
  ====
  * Calling the method ""foo()"" is prohibited
end note
stop

@enduml
```



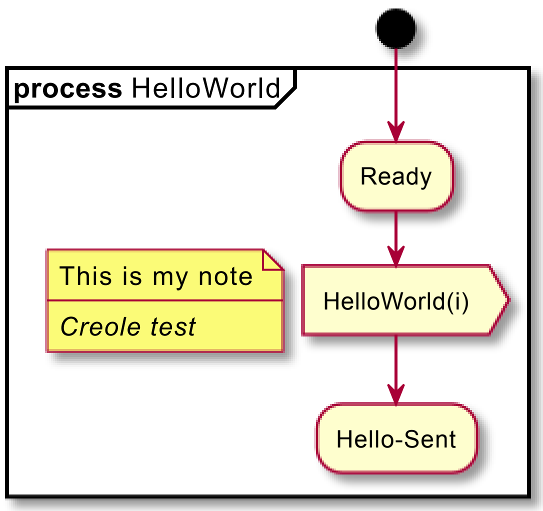
You can add note on backward activity:

```
@startuml
start
repeat :Enter data;
:Submit;
backward :Warning;
note right: Note
repeat while (Valid?) is (No) not (Yes)
stop
@enduml
```



You can add note on partition activity:

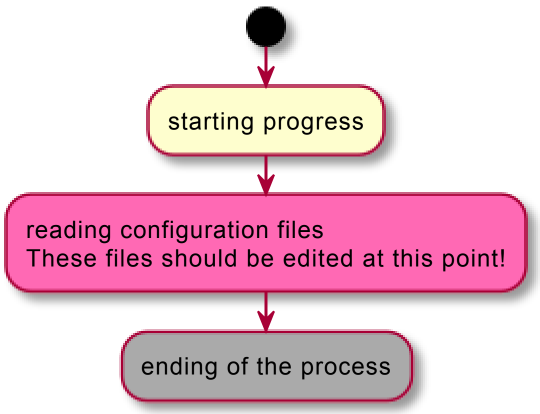
```
@startuml
start
partition "**process** HelloWorld" {
    note
        This is my note
        ----
        //Creole test//
    end note
    :Ready;
    :HelloWorld(i)>
    :Hello-Sent;
}
@enduml
```



Colors

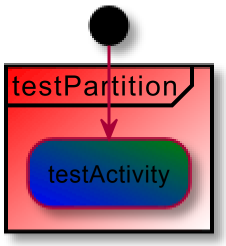
You can specify a color for some activities.

```
@startuml

start
:starting progress;
#HotPink:reading configuration files
These files should be edited at this point!;
#AAAAAA:ending of the process;

@enduml
```


starting progress
reading configuration files
These files should be edited at this point!
ending of the process

You can also use gradient color.

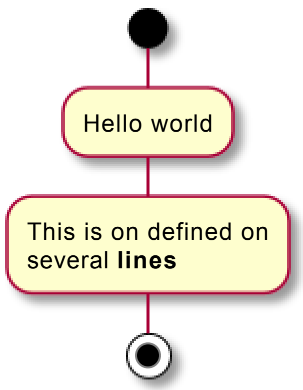
```
@startuml
start
partition #red/white testPartition {
        #blue\green:testActivity;
}
@enduml
```



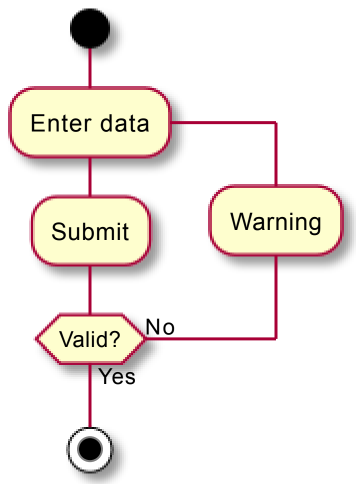
Lines without arrows

You can use `skinparam ArrowHeadColor none` in order to connect activities using lines only, without arrows.

```
@startuml
skinparam ArrowHeadColor none
start
:Hello world;
:This is on defined on
several **lines**;
stop
@enduml
```



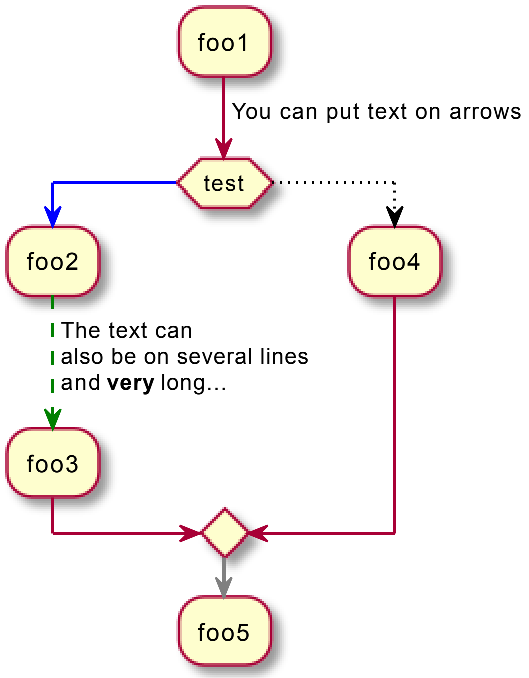
```
@startuml
skinparam ArrowHeadColor none
start
repeat :Enter data;
:Submit;
backward :Warning;
repeat while (Valid?) is (No) not (Yes)
stop
@enduml
```



Arrows

Using the `->` notation, you can add texts to arrow, and change their color.
It's also possible to have dotted, dashed, bold or hidden arrows.

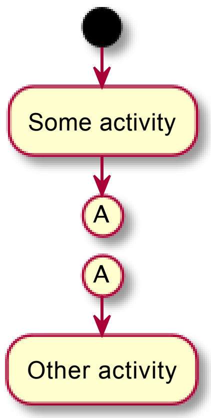
```
@startuml
:foo1;
-> You can put text on arrows;
if (test) then
  -[#blue]->
  :foo2;
  -[#green,dashed]-> The text can
  also be on several lines
  and **very** long...;
  :foo3;
else
  -[#black,dotted]->
  :foo4;
endif
-[#gray,bold]->
:foo5;
@enduml
```



Connector

You can use parentheses to denote connector.

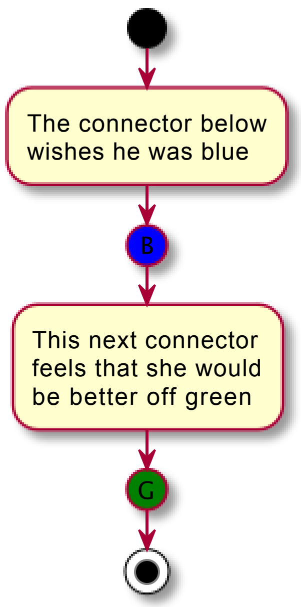
```
@startuml
start
:Some activity;
(A)
detach
(A)
:Other activity;
@enduml
```



Color on connector

You can add color on connector.

```
@startuml
start
:The connector below
wishes he was blue;
#blue:(B)
:This next connector
feels that she would
be better off green;
#green:(G)
stop
@enduml
```

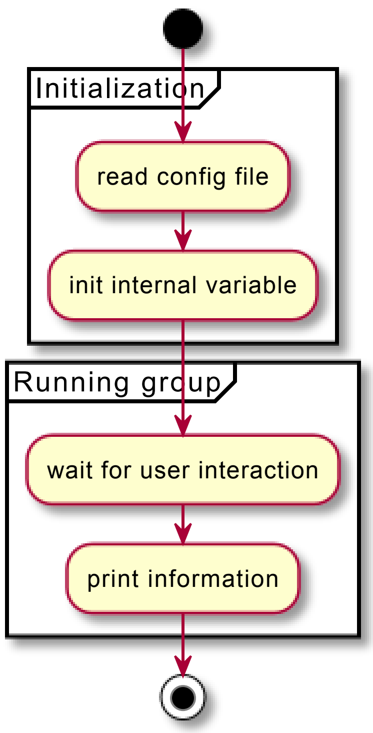

The connector below wishes he was blue
B
This next connector feels that she would be better off green
G

Grouping or partition

Group

You can group activity together by defining group:

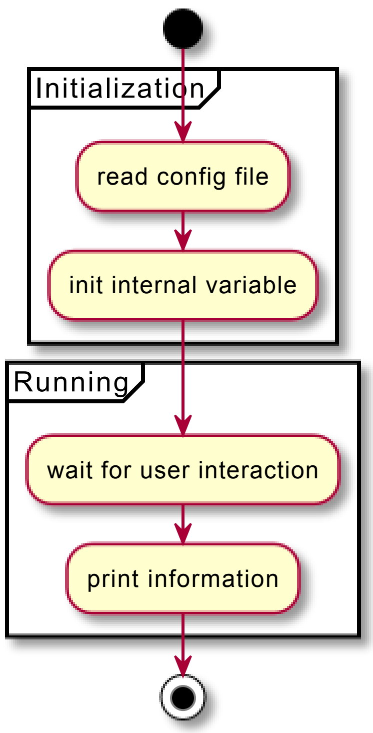
```
@startuml
start
group Initialization
    :read config file;
    :init internal variable;
end group
group Running group
    :wait for user interaction;
    :print information;
end group

stop
@enduml
```



Partition

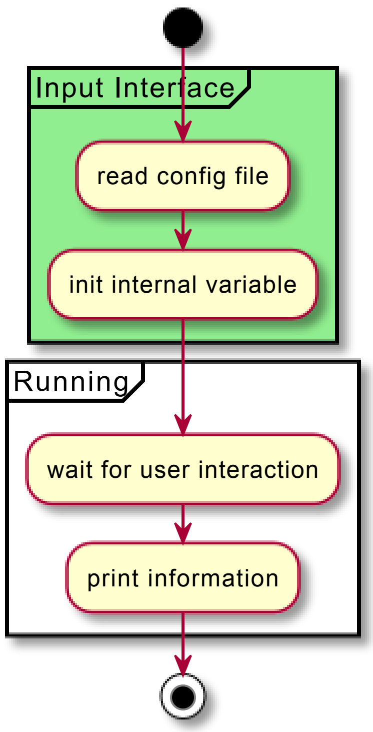
You can group activity together by defining partition:

```
@startuml
start
partition Initialization {
    :read config file;
    :init internal variable;
}
partition Running {
    :wait for user interaction;
    :print information;
}

stop
@enduml
```



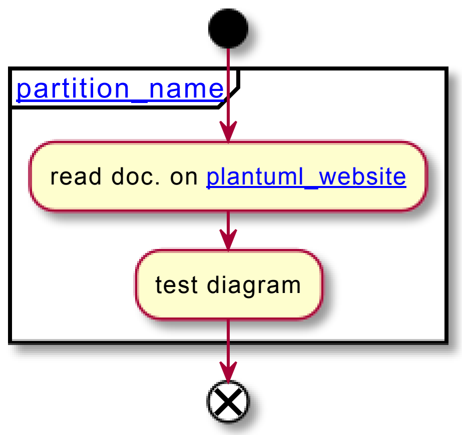
It's also possible to change partition color:

```
@startuml
start
partition #lightGreen "Input Interface" {
    :read config file;
    :init internal variable;
}
partition Running {
    :wait for user interaction;
    :print information;
}
stop
@enduml
```



It's also possible to add link to partition:

```
@startuml
start
partition "[[http://plantuml.com partition_name]]" {
    :read doc. on [[http://plantuml.com plantuml_website]];
    :test diagram;
}
end
@enduml
```

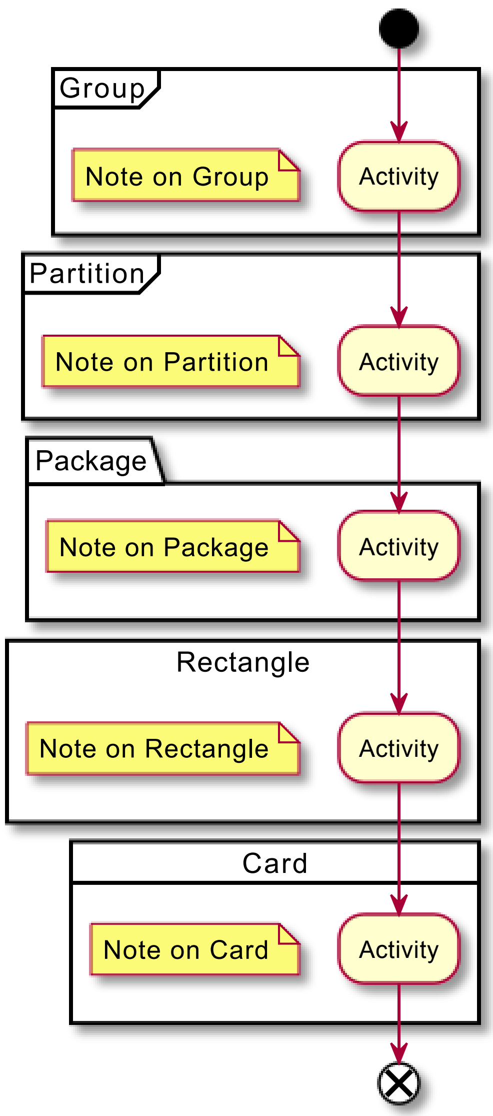


Group, Partition, Package, Rectangle or Card

You can group activity together by defining:

- group
- partition
- package
- rectangle
- card

```
@startuml
start
group Group
  :Activity;
end group
floating note: Note on Group

partition Partition {
  :Activity;
}
floating note: Note on Partition

package Package {
  :Activity;
}
floating note: Note on Package

rectangle Rectangle {
  :Activity;
}
floating note: Note on Rectangle

card Card {
  :Activity;
}
floating note: Note on Card
end
@enduml
```

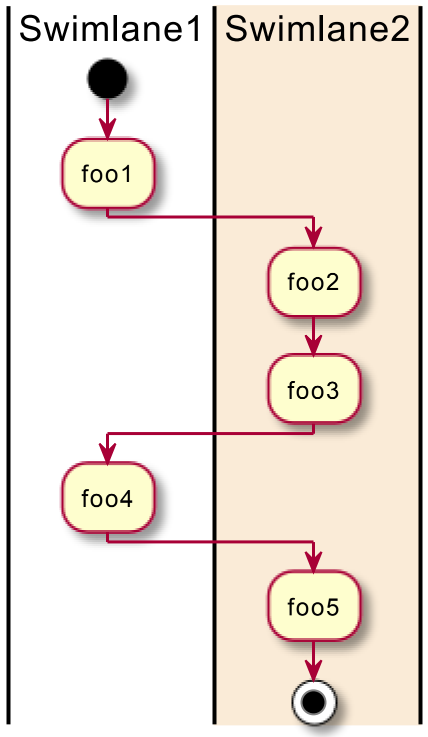


Swimlanes

Using pipe `|`, you can define swimlanes.

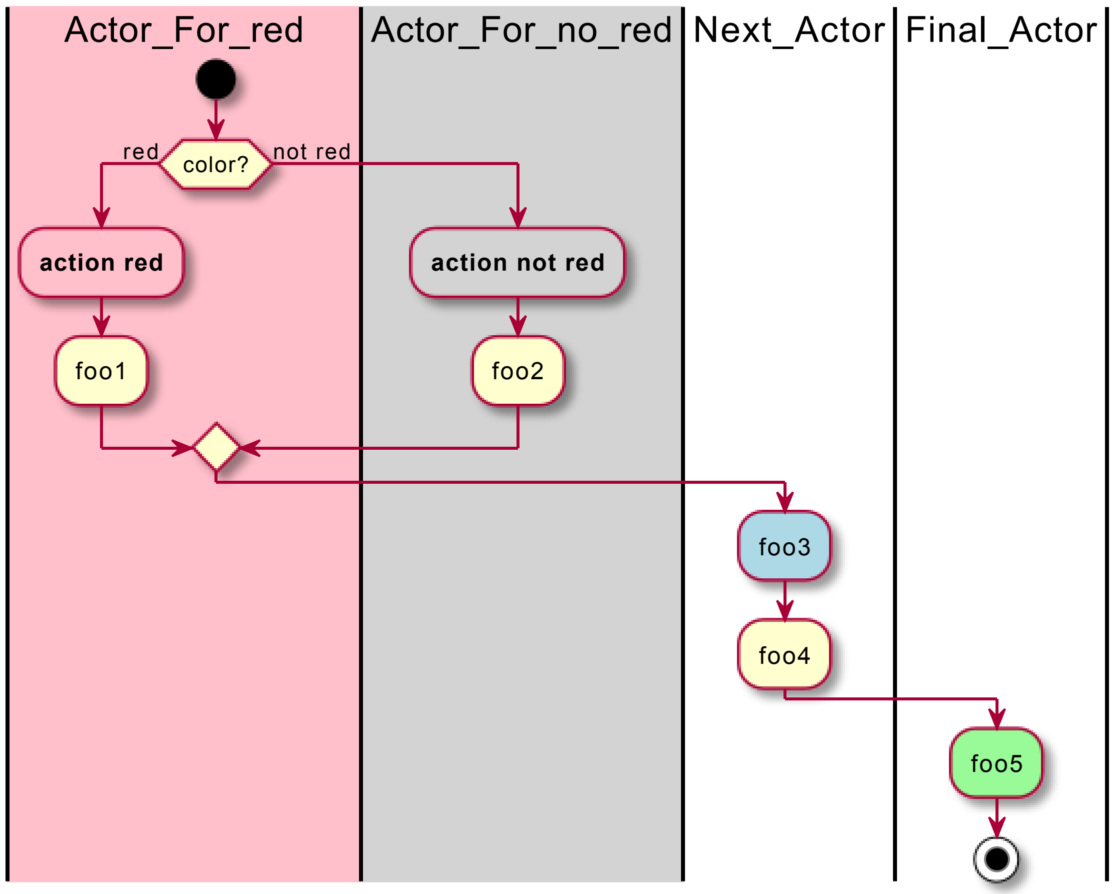
It's also possible to change swimlanes color.

```
@startuml
|Swimlane1|
start
:foo1;
|#AntiqueWhite|Swimlane2|
:foo2;
:foo3;
|Swimlane1|
:foo4;
|Swimlane2|
:foo5;
stop
@enduml
```



You can add `if` conditional or `repeat` or `while` loop within swimlanes.

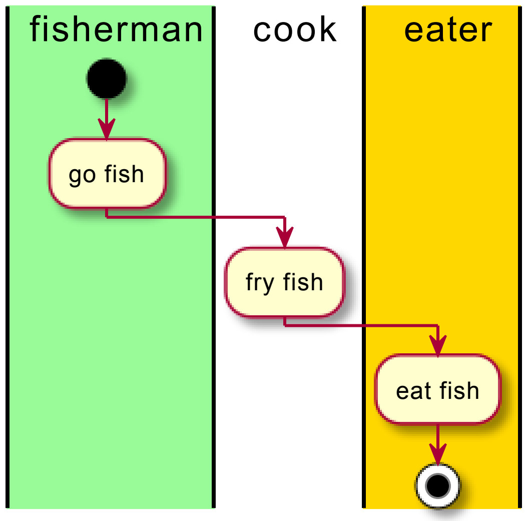
```
@startuml
|#pink|Actor_For_red|
start
if (color?) is (red) then
#pink:**action red**;
:foo1;
else (not red)
|#lightgray|Actor_For_no_red|
#lightgray:**action not red**;
:foo2;
endif
|Next_Actor|
#lightblue:foo3;
:foo4;
|Final_Actor|
#palegreen:foo5;
stop
@enduml
```



You can also use `alias` with swimlanes, with this syntax:

- `|[#<color>|]<swimlane_alias>| <swimlane_title>`

```
@startuml
|#palegreen|f| fisherman
|c| cook
|#gold|e| eater
|f|
start
:go fish;
|c|
:fry fish;
|e|
:eat fish;
stop
@enduml
```

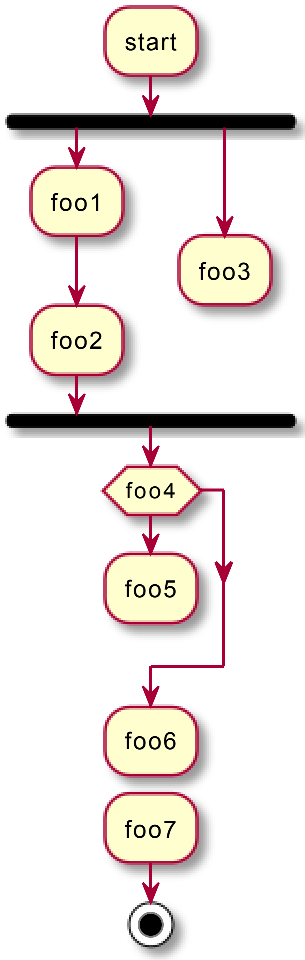


Detach or kill [detach, kill]

It's possible to remove an arrow using the `detach` or `kill` keyword:

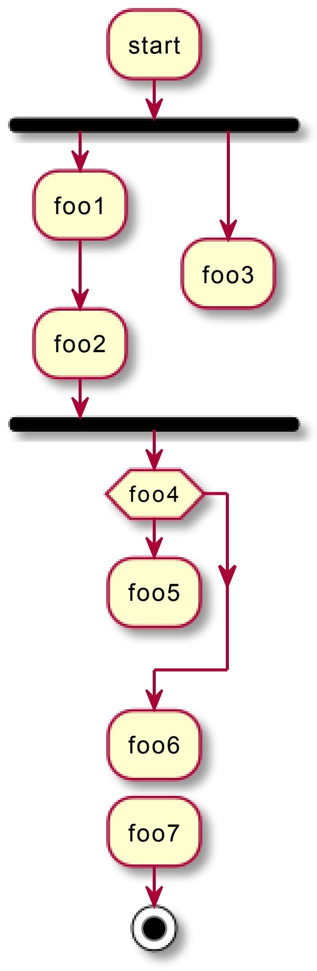
- `detach`

```
@startuml
 :start;
 fork
   :foo1;
   :foo2;
 fork again
   :foo3;
   detach
 endfork
 if (foo4) then
   :foo5;
   detach
 endif
 :foo6;
 detach
 :foo7;
 stop
@enduml
```



- `kill`

```
@startuml
 :start;
 fork
   :foo1;
   :foo2;
 fork again
   :foo3;
   kill
 endfork
 if (foo4) then
   :foo5;
   kill
 endif
 :foo6;
 kill
 :foo7;
 stop
@enduml
```

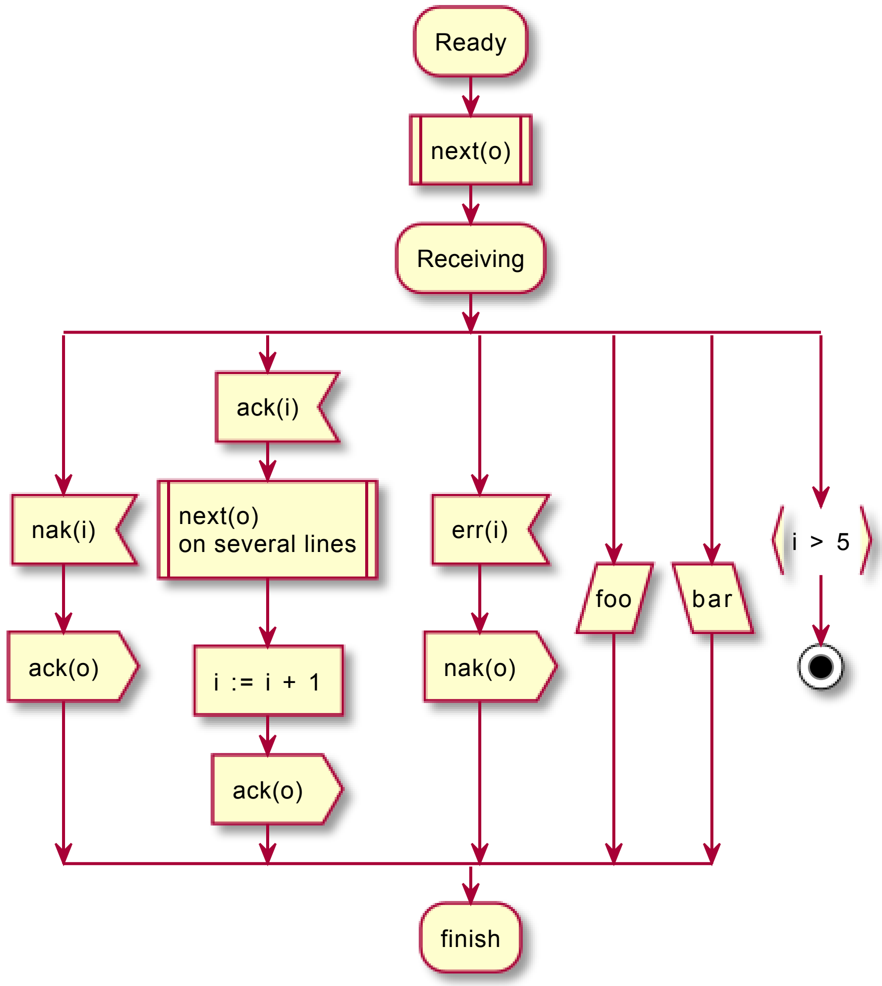


SDL (Specification and Description Language)

By changing the final `;` separator, you can set different rendering for the activity:

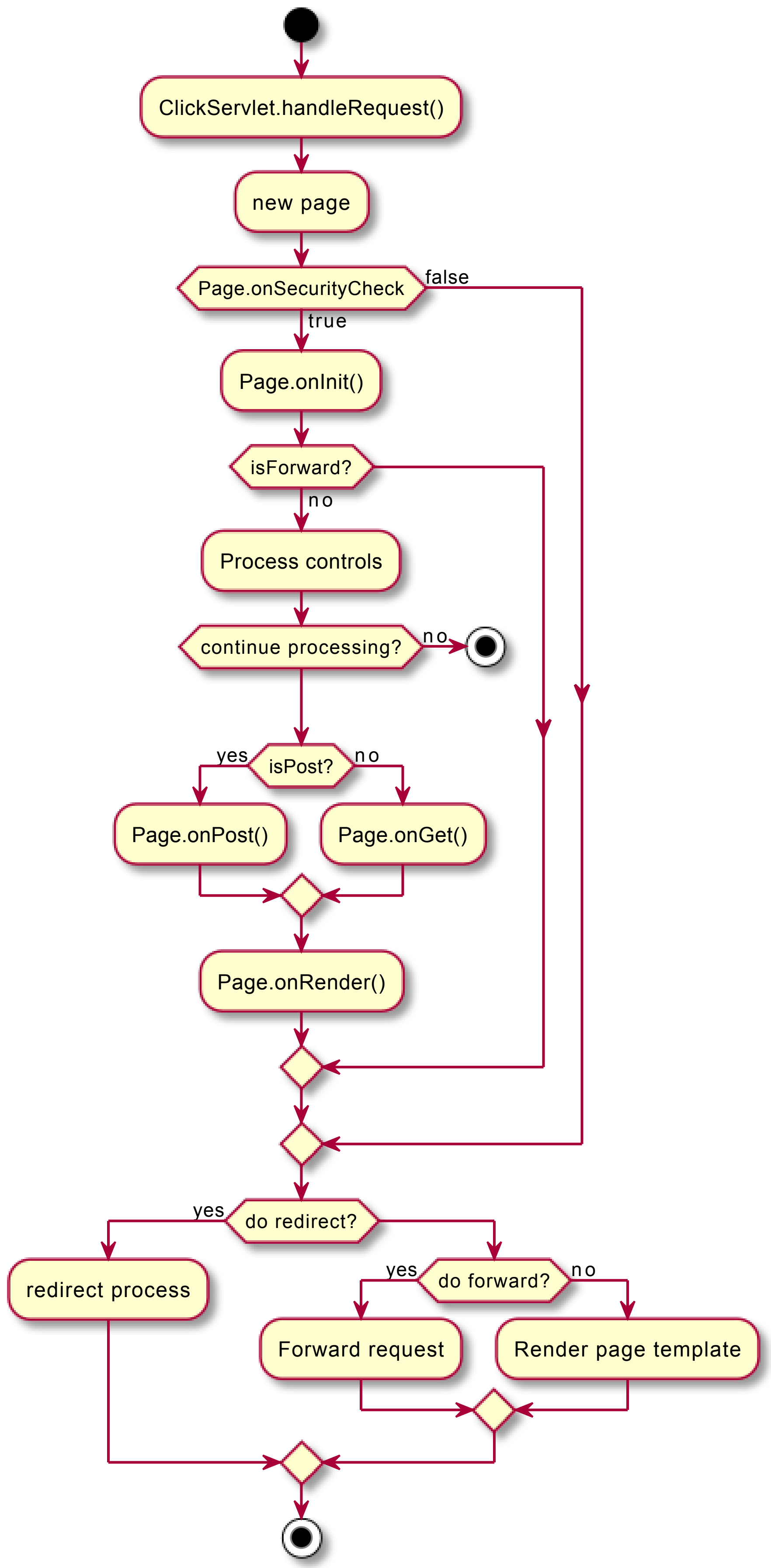
- `|`
- `<`
- `>`
- `/`
- `\\`
- `]`
- `}`

```
@startuml
:Ready;
:next(o)|
:Receiving;
split
 :nak(i)<
 :ack(o)>
split again
 :ack(i)<
 :next(o)
 on several lines|
 :i := i + 1]
 :ack(o)>
split again
 :err(i)<
 :nak(o)>
split again
 :foo/
split again
 :bar\\
split again
 :i > 5}
stop
end split
:finish;
@enduml
```


Ready
next(o)
Receiving
nak(i)
ack(i)
next(o)
on several lines
err(i)
foo
bar
i > 5
ack(o)
i := i + 1
nak(o)
ack(o)
finish

Complete example

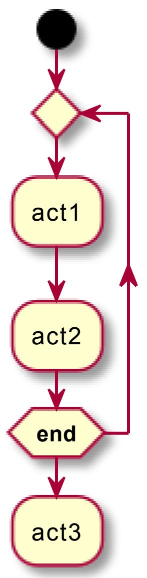
```
@startuml

start
:ClickServlet.handleRequest();
:new page;
if (Page.onSecurityCheck) then (true)
  :Page.onInit();
  if (isForward?) then (no)
    :Process controls;
    if (continue processing?) then (no)
      stop
    endif

    if (isPost?) then (yes)
      :Page.onPost();
    else (no)
      :Page.onGet();
    endif
    :Page.onRender();
  endif
else (false)
endif

if (do redirect?) then (yes)
  :redirect process;
else
  if (do forward?) then (yes)
    :Forward request;
  else (no)
    :Render page template;
  endif
endif

stop

@enduml
```


ClickServlet.handleRequest()
new page
Page.onSecurityCheck
false
true
Page.onInit()
isForward?
no
Process controls
continue processing?
no
yes
isPost?
no
Page.onPost()
Page.onGet()
Page.onRender()
yes
do redirect?
redirect process
yes
do forward?
no
Forward request
Render page template

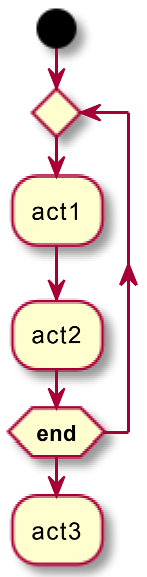
Condition Style

Inside style (by default)

```
@startuml
skinparam conditionStyle inside
start
repeat
  :act1;
  :act2;
repeatwhile (<b>end)
:act3;
@enduml
```

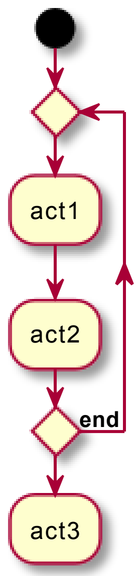


```
@startuml
start
repeat
  :act1;
  :act2;
repeatwhile (<b>end)
:act3;
@enduml
```



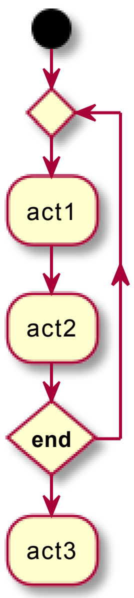
Diamond style

```
@startuml
skinparam conditionStyle diamond
start
repeat
  :act1;
  :act2;
repeatwhile (<b>end)
:act3;
@enduml
```

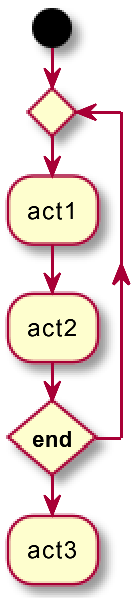


InsideDiamond (or Foo1) style

```
@startuml
skinparam conditionStyle InsideDiamond
start
repeat
  :act1;
  :act2;
repeatwhile (<b>end)
:act3;
@enduml
```



```
@startuml
skinparam conditionStyle foo1
start
repeat
  :act1;
  :act2;
repeatwhile (<b>end)
:act3;
@enduml
```

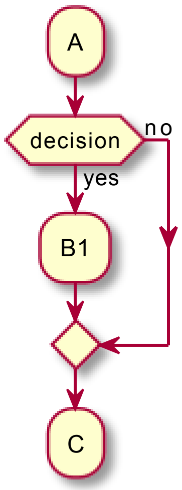


Condition End Style

Diamond style (by default)

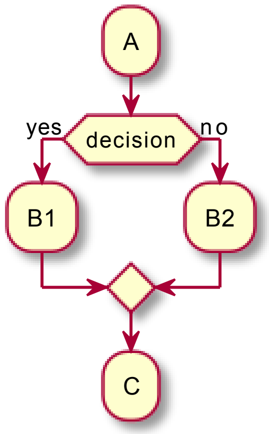
- With one branch

```
@startuml
skinparam ConditionEndStyle diamond
:A;
if (decision) then (yes)
    :B1;
else (no)
endif
:C;
@enduml
```



- With two branches (`B1`, `B2`)

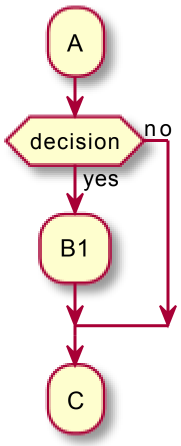
```
@startuml
skinparam ConditionEndStyle diamond
:A;
if (decision) then (yes)
    :B1;
else (no)
    :B2;
endif
:C;
@enduml
```



Horizontal line (hline) style

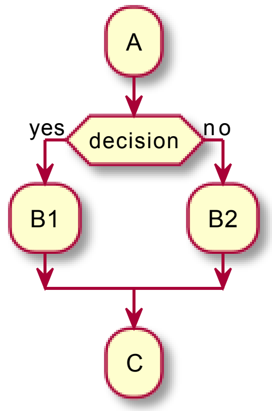
- With one branch

```
@startuml
skinparam ConditionEndStyle hline
:A;
if (decision) then (yes)
    :B1;
else (no)
endif
:C;
@enduml
```



- With two branches (`B1` , `B2`)

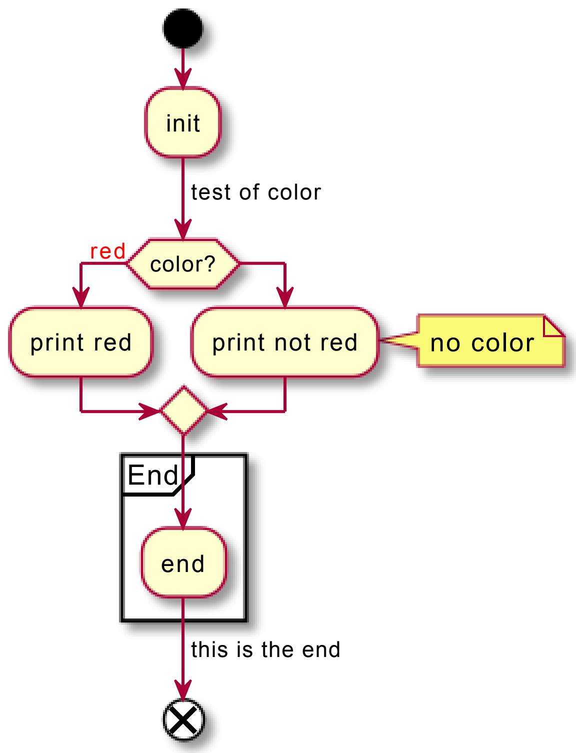
```
@startuml
skinparam ConditionEndStyle hline
:A;
if (decision) then (yes)
    :B1;
else (no)
    :B2;
endif
:C;
@enduml
```



Using (global) style

Without style (by default)

```
@startuml
start
:init;
-> test of color;
if (color?) is (<color:red>red) then
:print red;
else
:print not red;
note right: no color
endif
partition End {
:end;
}
-> this is the end;
end
@enduml
```

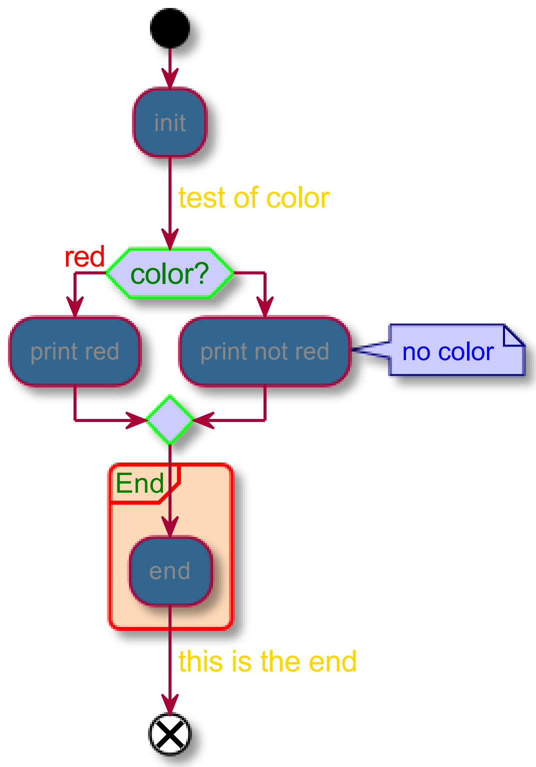


With style

You can use style to change rendering of elements.

```
@startuml
<style>
activityDiagram {
  BackgroundColor #33668E
  BorderColor #33668E
  FontColor #888
  FontName arial

  diamond {
    BackgroundColor #ccf
    LineColor #00FF00
    FontColor green
    FontName arial
    FontSize 15
  }
  arrow {
    FontColor gold
    FontName arial
    FontSize 15
  }
  partition {
    LineColor red
    FontColor green
    RoundCorner 10
    BackgroundColor PeachPuff
  }
  note {
    FontColor Blue
    LineColor Navy
    BackgroundColor #ccf
  }
}
document {
   BackgroundColor transparent
}
</style>
start
:init;
-> test of color;
if (color?) is (<color:red>red) then
:print red;
else
:print not red;
note right: no color
endif
partition End {
```

```
:end;
}
-> this is the end;
end
@enduml
```


init
test of color
red
color?
print red
print not red
no color
End
end
this is the end