

Lab 7

In this lab you will learn the following:

Edit and Query (p. 334), Clock plug-in (p.336)

Working methods:

Study pages 334-344.

Assignment:

Write a command based Clock plug-in that can show time on different planets using local time system.

For example Planets X, Y, Z have the following time systems:

Planet X: day consists of 15 hours and each hour has 75 minutes.

Planet Y: day consists of 15 hours and each hour has 45 minutes.

Planet Z: day consists of 12 hours and each hour has 60 minutes.

Name the plug-in command `mplab7`.

The initial situation is presented in Figure 1. Notice that before executing the `mplab7` command both clock hands must be selected. Clock consists of `hour_hand` (selected with white), `minute_hand` (selected with green), clock body (`nurbsTorus1`) and the yellow clock tic (`tic0`). This tic will be duplicated and rotated by the `mplab7` command in order to display time in a given time system. Notice that previously created tics must be deleted when new time is set.

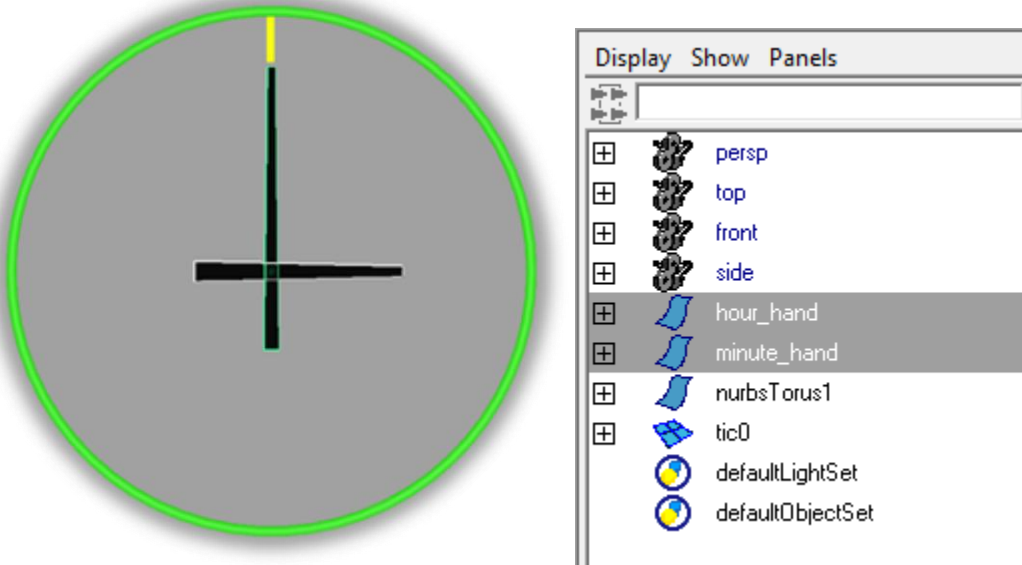


Figure 1

Your plug-in should support undo / redo operations and accept the following parameters:

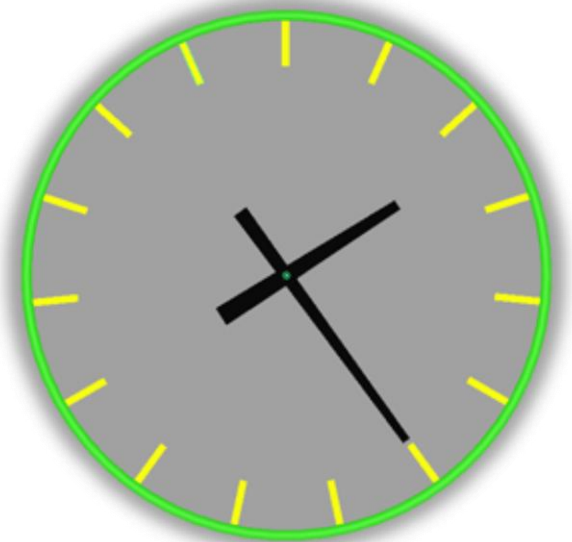
```
help mplab7;  
// Result:  
  
Synopsis: mplab7 [flags]  
Flags:  
-e -edit  
-q -query  
-h -hours    Int  
-m -minutes  Int  
-t -time     Int
```

Your plug-in must operate in `-query` and in `-edit` mode. In `-edit` mode an error must be shown if one of the following conditions is violated:

- all the following parameters must be set: `-hours` `-minutes` `-time`
- `-minutes` value must be larger than `-hours` value
- `-minutes` modulo `-hours` must be equal to 0
- `-minutes` must be ≥ 15 and ≤ 99
- `-hours` must be ≥ 5 and ≤ 99
- `-time` value must be within the boundaries of a given time system

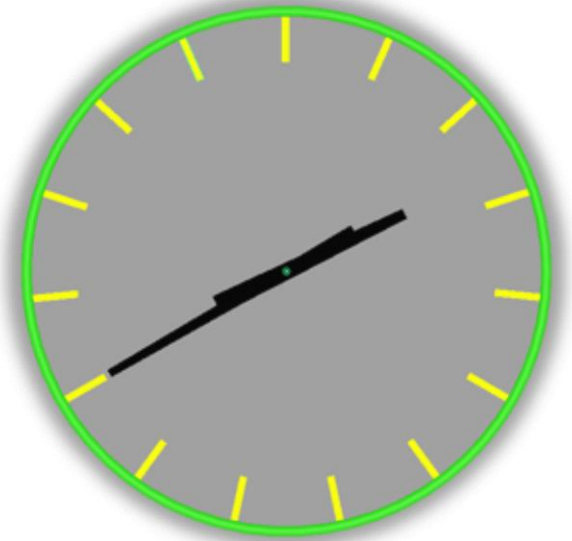
Example 1: Display 2:30 in Planet X Time System

```
mplab7 -h 15 -m 75 -t 230;
```



Example 2: Display 2:30 in Planet Y Time System

```
mplab7 -h 15 -m 45 -t 230;
```



Example 3: Display 2:30 in Planet Z Time System (Earth Time)

```
mplab7 -h 12 -m 60 -t 230;
```

