

# The plan package

Dan E. Kelley

August 10, 2009

## 1 Introduction

This package provides (mainly graphical) tools for the planning of projects. This is an early version of the package, providing support for burn-down charts and Gantt diagrams.

## 2 Burn-down charts

**Purpose.** Burndown charts<sup>1</sup> are used to display a time series of the progress towards the goals of a project. The format is simple. The x axis represents time, ranging from the onset of the project to the deadline for completion. The y axis represents the remaining effort that is require to accomplish the work. As the work is carried out, the chart provides a running summary of progress towards the deadline. If work is proceeding smoothly according to schedule, the chart takes the form of a triangle, with the remaining effort falling from its initial value to zero at the deadline. For guidance, a gray line is drawn to indicate this ideal situation. If work is being accomplished faster than expected, the data will lie below this gray line. However, if the project is falling behind schedule, the data line will lie above the ideal line. Thus, a glance at the chart indicates whether the deadline can be met. In most cases, the work is divided into sub-tasks, and the remaining effort in each task is shown with a different colour in the chart. This is helpful in identifying tasks that may need more attention.

**Example.** Evaluating the following code

```
> library(plan)
> data(burndown)
> print(summary(burndown))
```

produces textual output shown in Table 1 (which serves as an example of the data format), and

```
> library(plan)
> data(burndown)
> plot(burndown)
```

produces a plot as shown in Figure 1.

---

<sup>1</sup><http://alistair.cockburn.us/crystal/articles/evabc/earnedvalueandburncharts.htm>

```

Start,      2006-04-08 12:00:00
Deadline,  2006-04-11 20:00:00
Key, Description,      Effort
  1, code read.burndown(),  4
  2, code summary.burndown(), 1
  3, code plot.burndown(),  5
  4, create R package,      2
  5, write documentation,   2
  6, set up website,        1
Key, Done, Time
  1,  5, 2006-04-08 13:00:00
  2,  5, 2006-04-08 13:30:00
  1, 10, 2006-04-08 14:00:00
  2, 50, 2006-04-08 15:00:00
  4,  5, 2006-04-08 19:30:00
  5,  5, 2006-04-08 20:00:00
  4, 100, 2006-04-08 21:16:00
  1,  50, 2006-04-09 09:10:00
  3,  5, 2006-04-09 09:41:00
  3, 30, 2006-04-09 10:18:00
  3, 80, 2006-04-09 11:00:00
  2, 60, 2006-04-09 12:00:00
  2, 100, 2006-04-09 12:10:00
  1, 70, 2006-04-09 12:30:00
  5, 30, 2006-04-09 13:50:00
  5, 90, 2006-04-09 14:20:00
  5, 100, 2006-04-09 14:30:00
  1, 100, 2006-04-09 14:35:00
  3, 100, 2006-04-09 14:40:00
  6, 100, 2006-04-09 16:00:00

```

Table 1: A burndown data file, on which Figure 1 is based.

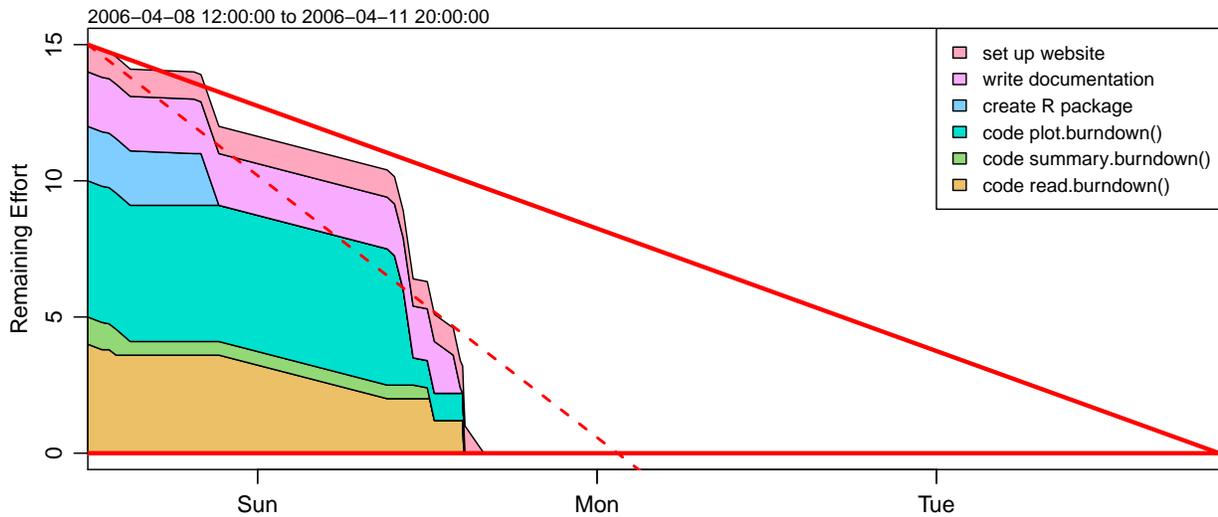


Figure 1: A burndown chart, based on data in Table 1.

### 3 Gantt charts

**Purpose.** Gantt diagrams<sup>2</sup> indicate a timetable for completion of the components of a project. The sample dataset `gantt` is a hypothetical research plan for an MSc project; you can see how it is graphed with `demo(gantt)` or `example(plot.gantt)`.

**Example.** Evaluating the following code

```
> library(plan)
> data(gantt)
> print(summary(gantt))
```

produces textual output shown in Table 2 (which serves as an example of the data format), and

```
> library(plan)
> data(gantt)
> plot(gantt)
```

produces a plot as shown in Figure 2.

---

<sup>2</sup>[http://en.wikipedia.org/wiki/Gantt\\_Chart](http://en.wikipedia.org/wiki/Gantt_Chart)

Key,	Description,	Start,	End,	Done,	NeededBy
1,	Assemble equipment,	2008-01-01,	2008-03-28,	90	
2,	Test methods,	2008-02-28,	2008-03-28,	30	
3,	Field sampling,	2008-04-01,	2008-08-14,	0	
4,	Analyse field data,	2008-06-30,	2008-11-14,	0	
5,	Write methods chapter,	2008-08-14,	2008-11-14,	0	
6,	Write results chapter,	2008-10-14,	2009-01-15,	0	
7,	Write other chapters,	2008-12-10,	2009-02-28,	0	
8,	Committee reads thesis,	2009-02-28,	2009-03-14,	0	
9,	Revise thesis,	2009-03-15,	2009-03-30,	0	
10,	Thesis on display,	2009-04-01,	2009-04-15,	0	
11,	Defend thesis,	2009-04-16,	2009-04-17,	0	
12,	Finalize thesis,	2009-04-18,	2009-05-07,	0	

Table 2: A gantt data file, on which Figure 2 is based.

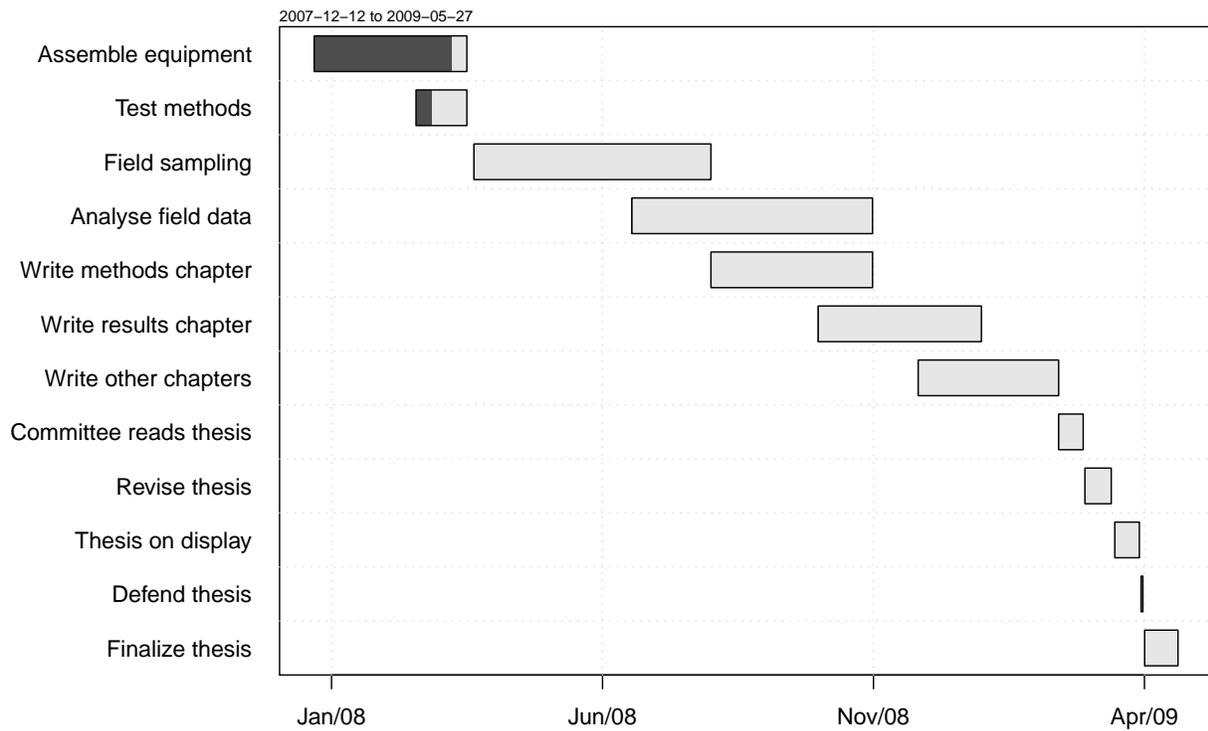


Figure 2: A Gantt chart, based on data in Table 2