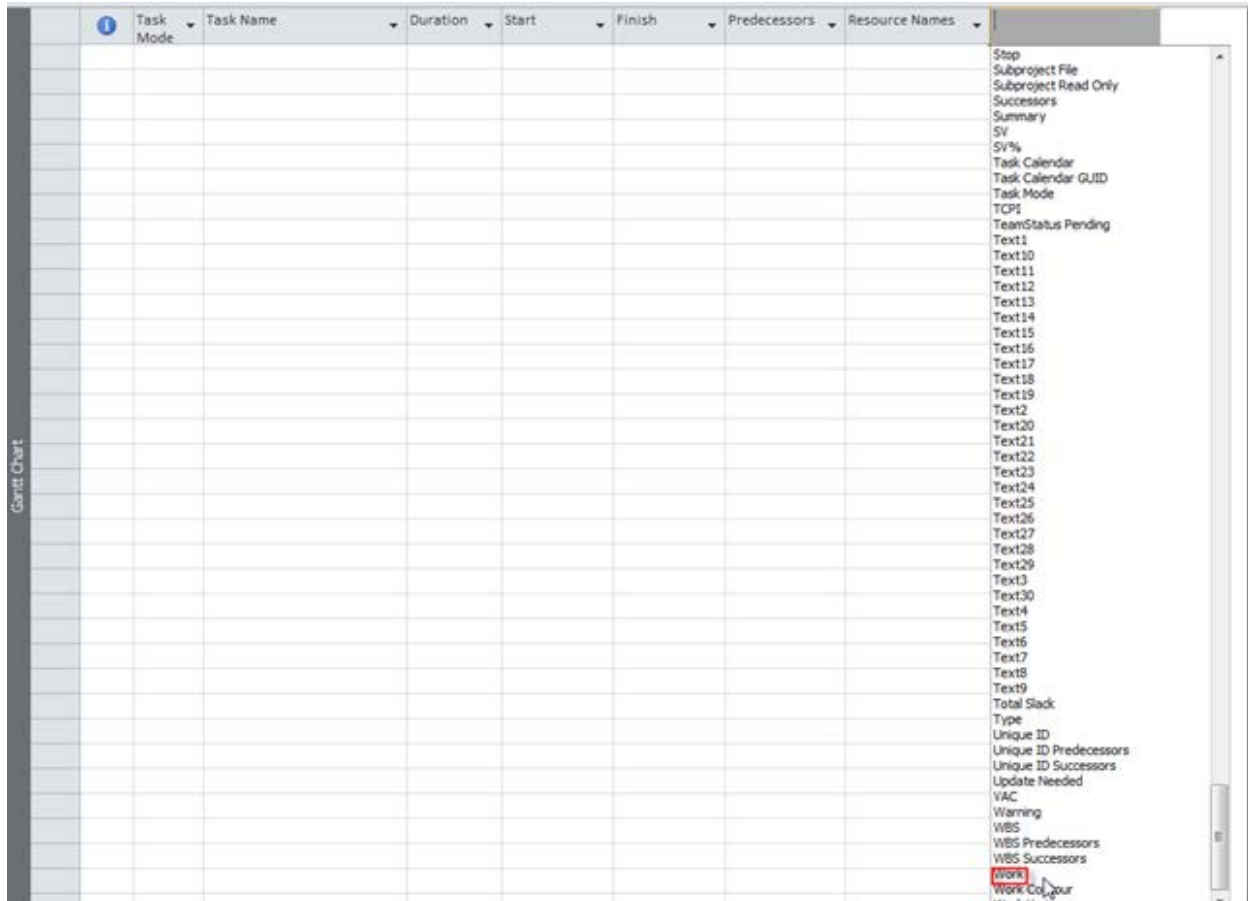


# Assigning Resources to Tasks

This article will explain how to assign resources to Tasks, and what happens when you add or remove additional resources to those tasks in **MICROSOFT PROJECT**. After that I will explain the MAGIC FORMULA.

OK! First I will make a Set up! I will add new column *Work*



Now I will add Two Tasks to the Project:

	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names	Work
1		Task 1	2 days	15.11.2011	16.11.2011			0 hrs
2		Task 2	3 days	15.11.2011	17.11.2011			0 hrs

As you can see *Work* is 0 hours? Why? Because *Work* field is directly connected with Resources!

I will add two Resources to the Project:

	Resource Name	Type	Material	Initials	Group	Max.	Std. Rate
1	John	Work		J		100%	\$100,00/hr
2	Mary	Work		M		100%	\$200,00/hr

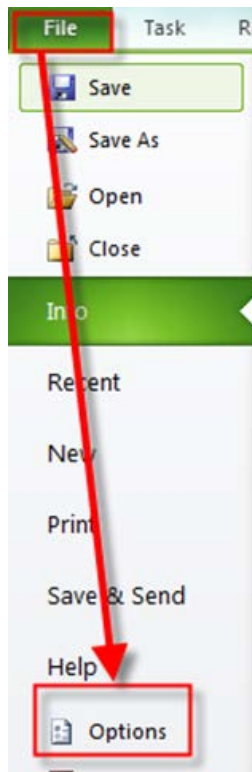
I will assign both John and Mary to Task 1:

Task	Task Name	Duration	Start	Finish	Predecessors	Resource Names	Work
1	Task 1	2 days	15.11.2011	16.11.2011		John;Mary	32 hrs
2	Task 2	3 days	15.11.2011	17.11.2011			0 hrs

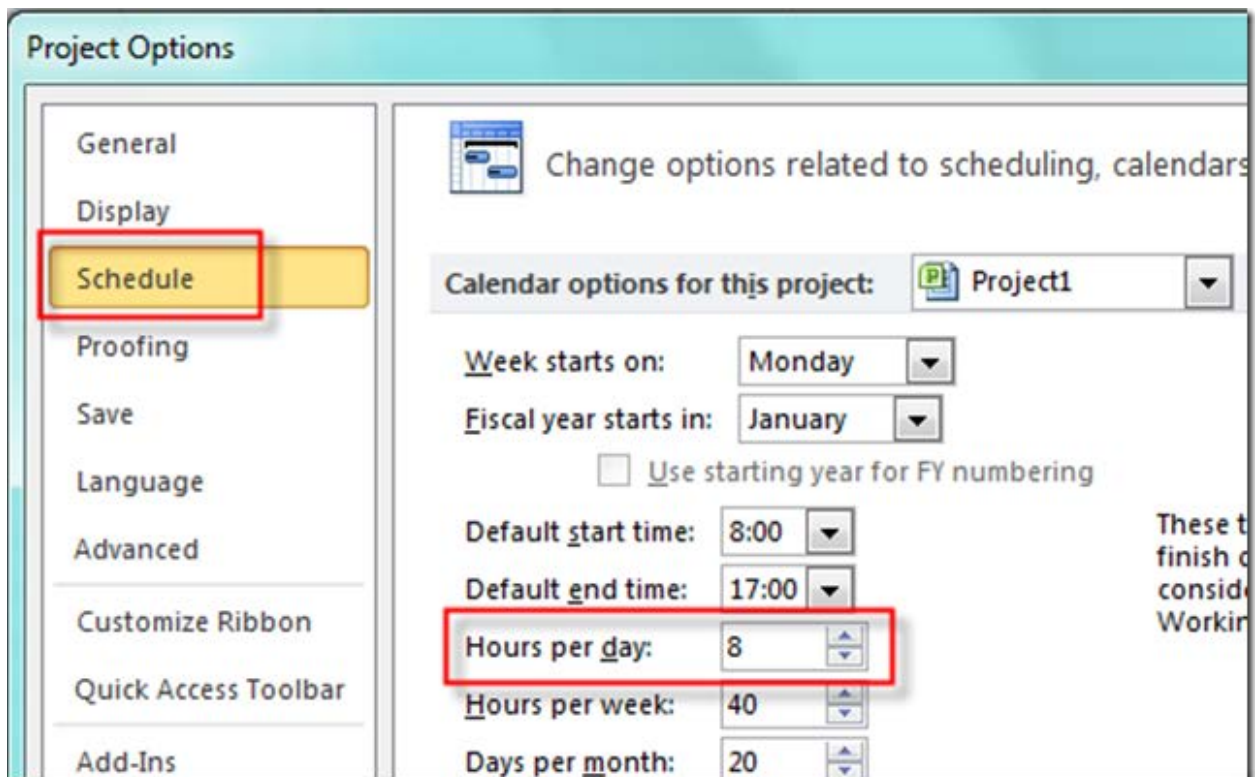
  

Resource Name	R/D	Units	Cost
John	100%	100%	\$1,600,00
Mary	100%	100%	\$3,200,00

As you can see I get 32 hours in the *Work* field! It is a Simple calculation: 2 days × 8 hours per day × 2 persons = 32 Hours! You may ask: “Where did this 8 hours per day comes from?” From here:



and then:



O.K.! I will assign John and Mary to Task 2, but in this case I will assign only 50% of Mary to the Task!

The screenshot shows the Microsoft Project interface. The 'Resource' tab is selected in the ribbon, and the 'Assign Resources' button is highlighted with a red box. A red arrow points from this button to the 'Assign Resources' dialog box. The dialog box is open for 'Task 2' and shows a list of resources: John (100% units) and Mary (50% units). The 'Units' column for Mary is highlighted with a red box. The background shows a Gantt chart with Task 1 and Task 2. Task 2 is highlighted in yellow, and its resource assignment is shown as 'John;Mary[50%]'.

and I will get:

		Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names	Work
1			Task 1	2 days	15.11.2011	16.11.2011		John;Mary	32 hrs
2			Task 2	3 days	15.11.2011	17.11.2011		John;Mary[50%]	36 hrs

As you can see I get 36 hours in the *Work* field! It is a Simple calculation: For *John*: 3 days × 8 hours per day (100%) × 1 person = 24 Hours! For *Mary*: 3 days × 4 hours per day (50%) × 1 person = 12 Hours. So *John + Mary* = 24 + 12 = 36 hours.

I will do the same thing for both Tasks, but I will assign John first, and then Mary!

	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names	Work
1		Task 1	2 days	15.11.2011	16.11.2011		John	16 hrs
2		Task 2	3 days	15.11.2011	17.11.2011			0 hrs

John is here, now I will assign Mary, and I will get:

	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names	Work
1		Task 1	2 days	15.11.2011	16.11.2011		John;Mary	32 hrs
2		Task 2	3 days	15.11.2011	17.11.2011			0 hrs

It seems that everything is same as in my first example. But, did you notice the little green triangle in the upper left corner of Task 1? If you put mouse pointer near it you will get so called: *Action Button*!

	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names	Work
1		Task 1	2 days	15.11.2011	16.11.2011		John;Mary	32 hrs
2		Task 2	3 days	15.11.2011	17.11.2011			0 hrs

You've added new resources to this task. Is it because you wanted to:

- ☐ Reduce duration so the task ends sooner, but requires the same amount of work (person-hours)
- ☒ Increase total work because the task requires more person-hours. Keep duration constant.
- ☐ Reduce the hours that resources work per day. Keep duration and work the same.

Show me more details.

You have three choices! And I will explain them! Basically you have to give **MICROSOFT PROJECT** the answer on the question: "OK. First you have assigned John. Now, you want Mary on the same Task! WHY? WHAT DO YOU WANT TO ACHIEVE? WHY DO YOU NEED MARY?" And, there are three answers:

*"Increase total work because the task requires more person-hours. Keep duration constant"*! That means that you need more WORKING HOURS, and you can see in a picture above that in the *Work* field is 32 hours instead of 16.

*"Reduce duration so the task end sooner, but requires same amount of work (person-hours)"*! If I choose that one, I will get:

	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names	Work
1		Task 1	1 day	15.11.2011	15.11.2011		John;Mary	16 hrs
2		Task 2	3 days	15.11.2011	17.11.2011			0 hrs

In this case I said to MICROSOFT PROJECT: *Well, John had to work 16 hours. I added Mary to The Task because I want this 16 hours to be split between John and Mary. John will work 8 hours per day, and Mary too. Since I need 16 hours to finish the Task, the Task will have only one day, instead of two!*



Last answer is:

*“Reduce the hours that resource work per day. Keep duration and work the same”!* If I choose that one, I will get:

	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names	Work
1		Task 1	2 days	15.11.2011	16.11.2011		John[50%];Mary[50%]	16 hrs
2		Task 2	3 days	15.11.2011	17.11.2011			0 hrs

In this case I said to MICROSOFT PROJECT: *Well, John had to work 16 hours. I added Mary to The Task because I want this 16 hours to be split between John and Mary. John will work 4 hours per day, and Mary too. The duration will be the same!*

You can see that in *Task Usage View*:

Task	Task Name	Work	Duration	Start	Finish	Add New Column	Details
1	Task 1	16 hrs	2 days	15.11.2011	16.11.2011		Work
	John	8 hrs		15.11.2011	16.11.2011		Work
	Mary	8 hrs		15.11.2011	16.11.2011		Work
2	Task 2	0 hrs	3 days	15.11.2011	17.11.2011		Work

Is it complicated? Yes it is. But, once when you get the point it will be much easier to work with MICROSOFT PROJECT!

I will add *John* to *Task1*.

	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names	Work	Add N
1		Task 1	2 days	15.11.2011	16.11.2011		John	16 hrs	
2		Task 2	3 days	15.11.2011	17.11.2011			0 hrs	

As you can see, in the *Work* field there is 16 hours (2 days × 8 hours per day).

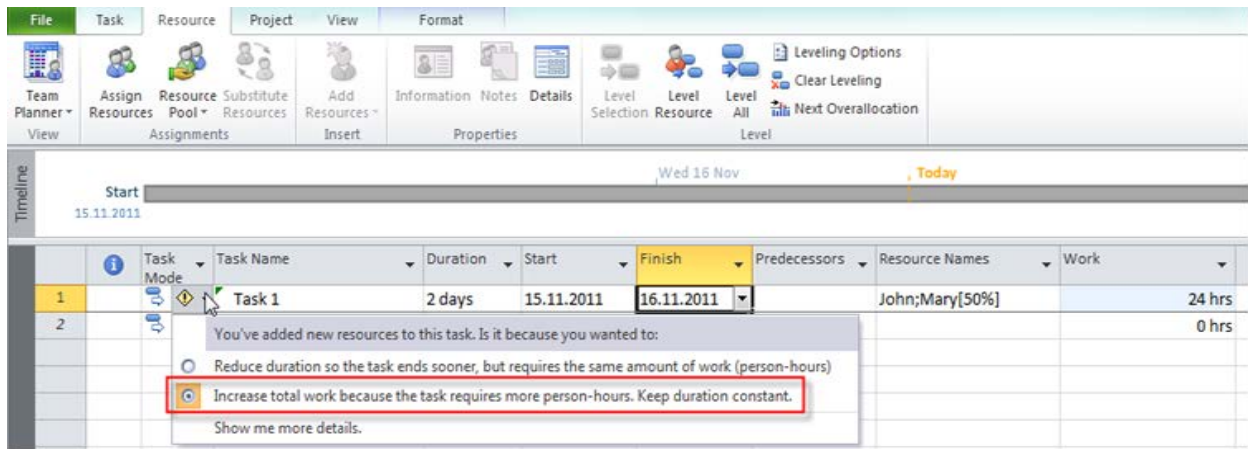
I will now assign *Mary* with *50% units*, and that means that she is only *50%* available for *Task 1*.

The screenshot shows the Microsoft Project interface with the 'Resource' tab selected in the ribbon. The 'Assign Resources' button is highlighted, and a red arrow points from it to the 'Assign Resources' dialog box. The dialog box is titled 'Assign Resources' and shows 'Task: Task 1'. Under 'Resource list options', 'All Resources' is selected. The 'Resources from Project1.mpp' list shows two resources: 'John' with 100% units and 'Mary' with 50% units. The 'Mary' row is selected, and the '50%' value in the 'Units' column is highlighted. The 'Cost' for Mary is \$1,600.00. The 'Work' column for Task 1 shows 24 hrs, and for Task 2, it shows 0 hrs.

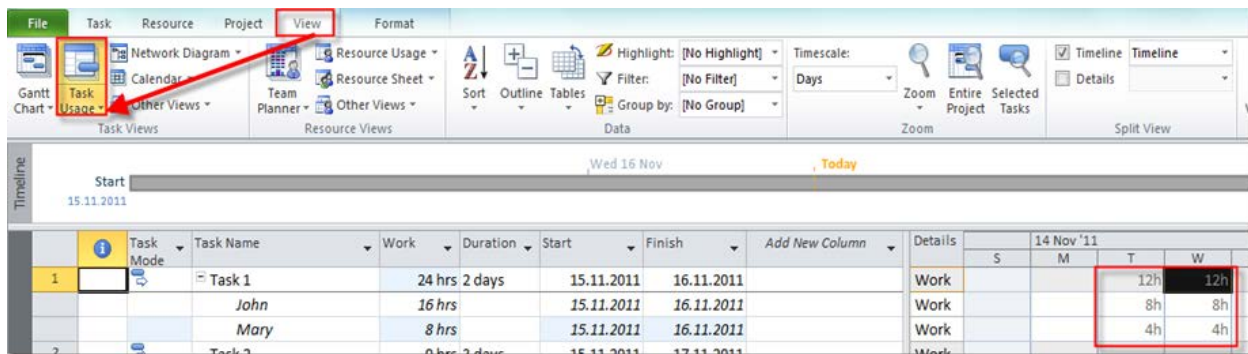
Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names	Work
1	Task 1	2 days	15.11.2011	16.11.2011		John;Mary[50%]	24 hrs
2	Task 2	3 days	15.11.2011	17.11.2011			0 hrs

Resource Name	R/D	Units	Cost
John		100%	\$1,600.00
Mary		50%	\$1,600.00

and I will get:

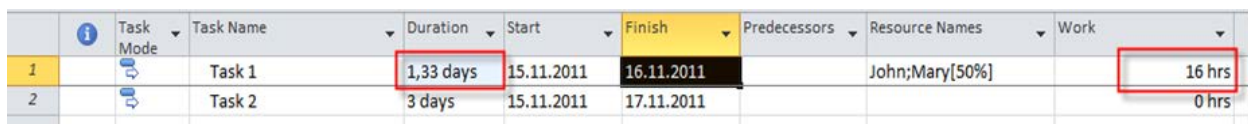


As you can see I have two possibilities. If I choose “Increase total work because the task requires more person-hours. Keep duration constant”! I will get 24 hours in the Work field, and I in the Task Usage View I will get:



As you can see John will work 8 hours per day, and Mary 4 hours per day. So it makes 24 hours in total.

If I choose another option: “Reduce duration so the task end sooner, but requires same amount of work (person-hours)”! I will get:



As you can see, Task Duration is now 1.33 days, and in the Work field I got 16 hours. Now let's see Task Usage View:



	Task Mode	Task Name	Work	Duration	Start	Finish	Add New Column	Details	14 Nov '11			
1		Task 1	16 hrs	1,33 days	15.11.2011	16.11.2011		Work	S	M	T	W
		John	10,67 hrs		15.11.2011	16.11.2011		Work			12h	4h
		Mary	5,33 hrs		15.11.2011	16.11.2011		Work			8h	2,67h
								Work			4h	1,33h

Since I add *Mary* with 50% on the task and I want to keep same amount of work (that is 16 hours) those hours has to be split between *John* and *Mary*. On the first day, *John* and *Mary* will work their full time (e.g. *John* 100% and it mean 8 hours, and *Mary* 4 hours per day). That is 12 hours. And now MICROSOFT PROJECT has to split remaining work and that is  $16 - 12 \text{ hours} = 4 \text{ hours}$ ! *John* will work  $\frac{2}{3}$  (e.g. 66.67%), and *Mary*  $\frac{1}{3}$  (e.g. 33.33%), and that is 2.67 hours for *John*, and 1,33 hours for *Mary*!

Now suppose that I assign both *John* and *Mary* to Task 2.

	Task 2	3 days	15.11.2011	17.11.2011		John;Mary	48 hrs
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Duration is three days, both *John* and *Mary* will work 8 hours per day and that make  $8 \text{ hours per day} \times 3 \text{ days} \times 2 \text{ persons} = 48 \text{ hours}$ !

OK! Now I will remove *John* from the Task!

The screenshot shows the Microsoft Project interface with the 'Resource' tab selected in the ribbon. The 'Assign Resources' dialog box is open, displaying a list of resources assigned to 'Task 2'. The resource 'John' is selected, and the 'Remove' button is highlighted. Red arrows indicate the sequence of actions: clicking the 'Resource' tab, clicking the 'Assign Resources' button, selecting 'John' in the list, and clicking the 'Remove' button.

**Task List:**

Task ID	Task Name	Duration	Start	Finish
1	Task 1	1,33 days	15.11.2011	16.11.2011
2	Task 2	3 days	15.11.2011	17.11.2011

**Assign Resources Dialog Box:**

Task: Task 2

Filter by: All Resources

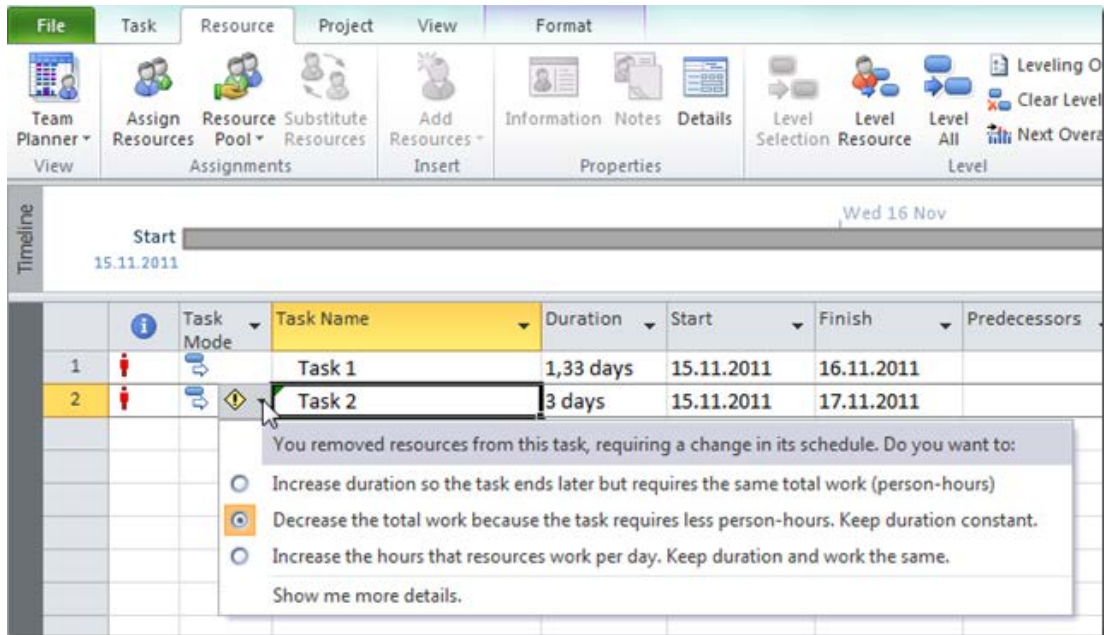
Resources from Project1.mpp

Resource Name	R/D	Units	Cost
✓ John		100%	\$3.400,00
✓ Mary		100%	\$4.800,00

Buttons: Assign, Remove, Replace..., Graph, Close, Help

Hold down Ctrl and click to select multiple resources

and I will get:



First, I will choose: *“Decrease the total work because the task requires less person-hours. Keep duration constant”*, and I will get:

2		Task 2	3 days	15.11.2011	17.11.2011	Mary	24 hrs
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As you can see, task has the same duration (3 days), but it will take only 24 hours, instead of 48!

Now, I will choose the second option: *“Increase duration so the task ends later but requires the same total work (person hours)”*, and I will get:

2		Task 2	6 days	15.11.2011	22.11.2011	Mary	48 hrs
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As you can see, *Mary* will work 8 hours per day, and to fulfill 48 hours she has to work  $48/8 = 6$  days.

Finally, I will choose: *“Increase the hours that resources work per day. Keep duration the same”*, and I will get:

2		Task 2	3 days	15.11.2011	17.11.2011	Mary[200%]	48 hrs
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As you can see, *Duration* is the same (3 days), *Work* is the same (48 hours), but *Mary* has to work with 200% of her capacity per day. Let's look at the *Task Usage View*:

2		Task 2	48 hrs 3 days	15.11.2011	17.11.2011	Work	16h	16h	16h
		Mary	48 hrs	15.11.2011	17.11.2011	Work	16h	16h	16h