Primavera Lab Manual





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Lab 1 – Creating a Project

1.1 Starting a Project

Once the Primavera icon has been selected and the appropriate password entered, this screen will appear.



The Menu at the top of the screen may also be used to setup a new project or open an existing project.

殆 Primavera Project Planner		_ 8	×
<u>File</u> <u>T</u> ools <u>H</u> elp			
New Ctrl+N			
Upen Ctrl+U			
Send Mail			
1 LAB2 21 AB1			
3APEX:AUTO			
<u>4</u> PRP3			
E <u>x</u> it Alt+F4	Add a New Project		×
	Current directory: c:\p?win\projecte	Die	
	current directory. c. tp3wintprojects	<u></u> n	
	Project name:		Cancel
Enter a 4	Number/Version:		Help
character Project	Project title:		
Nome Net 2 or 5	C		
Name. Not 3 or 5	<u>L</u> ompany name:		
characters, 4.			
This is the only	Planning <u>u</u> nit: Day 🗾	Project <u>s</u> tart: 20JUN97 💌	
mandatory field	<u>₩</u> orkdays/week: 5	Project must <u>fi</u> nish by:	
you must fill out	Week starts on: Mandau	Decimal places: 2	
on this screen			
	Add this new project to a project group		
		Desired ID.	
		Project ID:	
Start Primavera Project Pla W Microsoft W			

When entering a new project, enter the Project Name and then fill in the Project Title and Company Name fields. Most projects work a fiveday week and begin the week on Monday, but if a different workweek is required use the appropriate fields.

Do NOT enter a date in the Project Must Finish By field. This will artificially constrain the project and potential eliminate a zero total float critical path.

If you have already created a project, use the Open command to enter an existing project or the list of most currently used projects at the bottom of the File menu.



This is a scrollable index of projects in the default directory. If a project is located on the A Drive, change the directory to see a list of projects located there.

<u>Practice 1.1</u>

- 1. Create a new project with a unique 4 letter identifier.
- 2. Create a project title that suggests when and where the lab is taking place.
- 3. Put your name in the company name field.

1.2 Entering Activities and Durations

Once a new project has been entered or an existing project opened the screen below appears. For a new project, the data entry screen defaults to the ADD mode.



Once OK has been selected, the activity will be entered and appear not only in the blue area, but also as a bar. All of the information will remain at the bottom of the screen along with a set of menus directly related to the activity that is currently selected. If the menu should disappear, F7 will bring it back.

Prima File File Activity ID	Avera Projec Edit Define Edit Define 10 A Des Mobilization	et Planner - [L4 e Display Form E A A E A E ectivity scription	AB1] at Calc Cal	ulate <u>R</u> ep	Dorts Wind	ow <u>Hep</u> 1996 1,21,28,4 Mobilizati	■ ● ■ 6	■ ▼ ●	23 ,30 ,6		Hereit Control (1997) Hereit Control (1997) FEB 7 3 (10 (17 24))	MAR 4,3 ,10 ,17	- & × - & ×
•													×
Budget	Codes	Constr C	Cost	Custom	Dates	Log	Pred	Res	Succ	WB	s		
ID	10	Mobilization						Previou	ıs Nex	at He	lp		
OD	25 Pct	0.0 Cal 1		ES [12	SEP96	~	🗌 EF 16	50CT96	~	TF: 0			
RD	25	Туре Ас	*	LS 12	SEP96	~	LF 16	60CT96	~	FF: 0			
Resp	Area	Mile Item		n Step Wi	BS]						
				Clas	ssic Schedu	ile Layout			All Ad	ctivities			

To add additional activities, click on the plus sign "+" above the Activity ID column, use the down arrow, or select EDIT and then ADD. Doing any of these will give you a new blue line and a blinking cursor in the activity ID box toward the bottom of the screen.

<u>Practice 1.2</u>

- 1. Using the list of activities on the next page, enter each activity ID, Description, and Original Duration.
- 2. As you finish entering each activity's data, click on OK.
- 3. When you have entered ½ of the activities, turn the keyboard over to your partner, if you have one.
- 4. You can also enter the activities by selecting the <u>VIEW</u> button from the upper menu followed by the <u>PERT</u>.

CON495 Construction Planning & Scheduling

Primavera Lab Class #1: P3 Basics



The total budgeted resource use (mh) for each activity is listed as follows:

Activity Name	Man-hours (MH)	Activity Name	Man-hours (MH)	Activity Name	Man-hours (MH)
Α	32	E	20	I	4
В	12	F	18	К	16
С	15	G	16	L	8
D	18	Н	8		

6

👌 Prima	avera Pr	oiect Pla	nner - IL/	B31														₽×
📜 <u>F</u> ile	<u>E</u> dit ⊻i	ew <u>I</u> nser	t F <u>o</u> rmat	Tools	<u>D</u> ata	Window	<u>H</u> elp										-	BN
D			🗿 🔏 🖪		-14	-==1 💋	3				±	dh 🔲	. [217	8			
—+	-	10											<u> </u>			197 M	on	
Activity		Activity	1	Orig		IN				199 CED	7	- 00	· T	_	NOV		DEC	_
ID		Descripti	on	Dur	, 9 ,1	6 <mark>23 30</mark>	17 14 21	28 4 11	, 18 ₋ 25 -	1 <mark>8 15</mark>	22 29	1,6 ,13	3 <mark>20 2</mark>	27 3	10 17 24	1 8	15 22	2 29
10	Mohilizati			25		4		7 Mobilizatio	n							1		
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	1 [11 (2001)		_															
	Activity I	Detail	▶ <u>B</u> ue	lget												1		
	Edit Acti	vity		les										1		1		
	Dissolute	CCIVICY	Lo <u>r</u> Cer	istraints •												1		
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_	E <u>M</u> alaction	sourity	— Dal	es.	°													
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			Re	ources	_													
			Suc	cessors	\sum			1						i l				_
			<u></u> E	s														
Budge	t Cod	es Co	ns Clo	se All	-	om Da	ates	Log F	red	Res	Su	ucc	WE	55				
ID	10	Mo	bilization	_						Previo	us	Next	He	elp				
OD	25 Pc	t 0.0) Cal 1		ES	20JUN	97 🖵		E 24.	IUL 97	Ţ		IF: 0					
RD	25 Ty	pe Task		-	LS	, 20JUN	97 🚽	ı	.F 24	JUL97	<u> </u>	I	FF: 0					
_						<u></u>			_									
Resp	Area	Mil	e Item	Loc	n Ste	WBS												
						Classic	Schedule La	ayout			A	II Activi	ties					
🚮 Star	t 隆 Pi	imavera	Project P	la]	😗 Miero	osoft Wor	d - Primaver,								4	12) 10::	30 AM

1.3 Predecessor and Successor Relationships

The row of menu buttons on the bottom half of the screen above provides a means of entering relationships (Succ = successors or Pred = predecessors), resources (Res), and many other valuable attributes of the activities in your network. Remember, that for today's class only, activities will be related Finish-to-Start (FS) only. So when you see two activities like this:



Predecessor

Successor,

you have a choice. You may go to activity B, by highlighting it with the mouse. Then to enter this relationship, select the Succ menu button and enter activity C as the follower or successor of B. You can also use

the right button of the mouse to insert relationships. The FS relationship will be put in automatically when you click on OK, as it is the default relationship. Your other choice is to select Pred. Then enter activity A as the predecessor of B (see the diagram on the previous page).

🔁 Prima	avera Project Planner - [LA	B3]				_ B ×
📜 Eile	<u>E</u> dit <u>V</u> iew <u>I</u> nsert F <u>o</u> rmat	<u>T</u> ools	<u>D</u> ata <u>W</u> indow <u>H</u>elp			_ 8 ×
		16-	¥ 4ø% 🗉		L 📶 🖪 🛛	8
- +	▽ ≑ 6					05SEP97 Fri
Activity	Activity	Orig		Alig SEP	0CT	
ID	Description	Dur	<u>9 16 23 30 7 14 21 28 4</u>	11 18 25 1 8 15 22	29 6 13 20 27 3	10 17 24 1 8 15 22 29
10	Mobilization	25	Mobi	lization		▲
20	A	4				
×		×			edecessors ity: 30 - B v 20 tivity ID Rel 20 FS	Lag TF Desc 0 0A
Budge	t Codes Constr C	ost	Custom Dates Log	Pred Res	Succ WBS	
ID	30 B			OK	Cancel Help	
OD	6 Pct 0.0 Cal 1	Г	ES 20JUN97 💌	EF 27JUN97 👻	TF: 0	
RD	6 Type Task		LS 20JUN97 💌	LF 27JUN97 👻	FF: 0	
Resp	Area Mile Item	Locr	n Step WBS			
			Classic Schedule Layout		All Activities	
🄀 Star	t 🎦 Primavera Project Pl	a 👿	Microsoft Word - Primaver			🍕 🖏 🔶 🛛 10:49 AM

Because most people read from left to right (in this country), it is often easier to use Succ than Pred. However the figure above shows activity B being selected and its Predecessor, activity A, being entered.

<u>Practice 1.3</u>

- 1. Using the diagram on page 6 enter the relationships for each of the activities.
- 2. Use either the Pred or Succ window to add the relationships.

1.4 Schedule Reports and Calculation Run

Now that the activities have all been entered and their relationships to other activities, it's time to see how long this project will take.

🏓 Prima	avera Project Planner - [L4	\B3]	
📜 <u>F</u> ile	<u>E</u> dit <u>V</u> iew <u>I</u> nsert F <u>o</u> rmat	<u>Iools D</u> ata <u>W</u> indow <u>H</u> elp	
	ie de 1	<u>S</u> chedule , F9	▏▥ॖॖॖॖॖॖॖॖॖॖॖॖॗॖॖॖ
-+	6	Level Shift+F9	24JUN97 Tue
Activity	Activity	Global <u>C</u> hange	
ID	Description	<u>T</u> abular Reports	1,28,4,11,18,25,1,8,15,22,29,6,13,20,27,3,10,17,24,1,8,15,22,29
10	Mobilization	<u>G</u> raphic Reports	7 Mobilization
20	A	Draw	
- 30	0	Look	
		<u>R</u> eportSmith	
		Update Data Dictionary	
		Web Publishing Wizard	→ Use the Tools Button on the
		Project Utilities	Monu and Solact Schodula Don't
		<u>F</u> ragnet	
		Options •	use F9.
		1 Monto Carlo	
Budge	t Codes Constr C	Cost Custom Dates	Log Pred Res Succ WBS
ID	30 B		Previous Next Help
OD	6 Pct 0.0 Cal 1	ES 20JUN97 -	EF 27JUN97 TF: 0
RD	6 Type Task	LS 20JUN97 🚽	LF 27JUN97 FF: 0
Resp	Area Mile Item	Locn Step WBS	
		Classic Schedule	Layout All Activities
🛃 Star	t Primavera Project P	la 🕎 Microsoft Word - Primav	er 🍕 🏹 🔶 10:55 AM

The calculate button and schedule command will give a new screen.

Schedule		×	
Data date: 12SEP9E ▼ ✓ List <u>constraints</u> ✓ List open <u>e</u> nds ✓ List <u>a</u> ctivities with out-of-sequence <u>Report series</u> : ▼	e progress	OK Cancel Help Options	→ This should be the start date of your project – likely <u>TODAY'S DATE</u>
	Notice t defaults Click on next.	hat all of tl 5. Leave th OK to see	ne options are ese as defaults. what happens

	 View on screen Print immediately Save to the following Look file: P3.OUT Directory: c:ves Driver: p3 Driver: c: Network 	
Ţ	Here, although there are 3 choi usually wise to see the output I decide to print. This will reduc of trees used for paper and red Click on OK or hit Enter to see t will create.	ices, it is before you e the number uce your cost. the report you
7	This Primavera software is registered to Weber & Associates. Start of schedule for project LAB1. Serial number19380329 User name SANDIW . Open end listing Scheduling Report Page: 2 Activity 10 has no predecessors Activity 120 has no successors Scheduling Statistics for Project LAB1: Schedule calculation mode - Retained logic Schedule calculation mode - Contiguous activities Float calculation mode - Use finish dates SS relationships - Use early start of predecessor Schedule run on Fri Sep 13 17:45:39 1996 Run Number 0 activities in longest path. 6 Started activities	This is an open end listing. You should find only one activity without a predecessor and one without a successor. Here it is activities A and L, which start and end the project. If there are more, you must add relationships. Remember, only one start and one finish.

As long as there is only one start and one finish and NO LOOPS, your project has been successfully calculated.

<u>Practice 1.4</u>

- 1. When your project has successfully calculated, place your name at the top of printout page 2 using the computer in Primavera Look.
- 2. Printout pages 2 and 3 only of the calculation report and submit it to the TA.
- *3. If your network has problems and you are unable to correct them, request help from the instructor or TA.*

1.5 Resources

🍅 Prima	avera Project Planner - [LAE	B1]					
📜 <u>F</u> ile	_ <u>E</u> dit <u>V</u> iew <u>I</u> nsert F <u>o</u> rmat]	<u>T</u> ools <u>D</u> ata <u>W</u> indow <u>H</u> elp			<u>_ 8 ×</u>		
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Activity	Activity	Orig	1997 AUC CED	OCT	NOV DEC		
ID	Description	Dur 116.123.130.17144.121.128.	4	9.6.13.20.27.3	1000 DEC		
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20	в	3 🌌 В					
30	c	3 ∆⊽⇒ C					
50	E	5 47 E					
40	0 F		1	1	1		
- 70	r C						
90	12	4					
100	Н	2 AZT		1			
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				1			
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					►.		
Budge	t Codes Constr Co	ost Custom Dates L	.og Pred Res	Succ WBS			
ID	10 A		Previous	Next Help			
RD	4 Type Task	LS 18JUN97 🚽	LF 23JUN97 🚽	FF: 0			
Resp	Area Mile Item	Locn Step WBS					
		Classic Schedule La	yout	All Activities			
		1		1			

Your network now looks like the one above with some activities in red and some in green. The red ones are on the critical path. Can you tell how the activities are related from this bar chart?

Select the Res button at the bottom of the screen. This will allow us to enter the resources assigned to each activity. For the example project on Page 6, the resource is man-hours or workhours. Use the abbreviation MH to indicate that the resource is man-hours. The data entry screen will look like the one on the next page.

Resources		×	
Resource		•	Initially there was a + in
Cost Acct/Category			this area of the Resource
Driving			
Curve			box. Click on the plus
Units per day	0.00		and enter MH. Then
Budgeted quantity	0.00		
Res Lag/Duration	0		move the cursor to the
Percent complete			Budget Quantity and
Actual this period	0.00		and the Tetel such as of
Actual to date	0.00		enter the lotal number of
To complete	0.00		man-hours assigned to
At completion	0.00		
Variance (units)	0.00		activity A. Here it is 20.
Early start	18JUN97		_
Early finish	23JUN97		
Late start	18JUN97		
Late finish	23JUN97		
	▲	•	

When you enter the number of total resources and click on OK for the first time with a new resource, here's what happens.

Add Reso	urce			×
	Add MH	l to dia	tionary?	
Title:				
	ок	Cancel	Help	

You are given an opportunity to more fully describe the resource. Enter the words, Work Hours and click on OK. This is the result you will see.

Resources		×	
- + 20.00			
Resource	MH		
Cost Acct/Category			
Driving			The program
Curve			automatically
Units per day	5.00	-	automatically
Budgeted quantity	20.00		calculates the
Res Lag/Duration	0		
Percent complete			resource units per
Actual this period	0.00		day assigned to
Actual to date	0.00		uay assigned to
To complete	20.00		this activity by
At completion	20.00		
Variance (units)	0.00		dividing the total
Early start	18JUN97		quantity by the
Early finish	23JUN97		quantity by the
Late start	18JUN97		duration.
Late finish	23JUN97		
	•	•	L

You can enter either the Budgeted quantity (total number of resources) or the Units per day and the program will calculate the other quantity and the quantity to complete and at completion.

Practice 1.5

- Enter the resources for all of the activities in the network shown on page
 6.
- 2. If you are working in pairs, switch so that the one doing the data entry is different than the one of you that calculated the network.

The term Histogram has been used frequently in class. Let's create the first histogram in Primavera.

Select the View button from the upper menu followed by Resource Profile. Note that the same task can be accomplished with the function keys.



The resulting profile should appear at the bottom of your screen covering the Activity Data Table.

You may have to change your profile slightly. The one shown below is shown in days, not weeks or months. (These diagrams do not represent the page 6 project.)



In the next lab session we will input another network, calculate it, and learn how to prepare many reports. The remainder of the session today will focus on the Calendar and Backing Up and Restoring Projects.

1.6 Calendar Adjustments

Before you continue, double click the mouse when the cursor is on the time scale at the top of the bar chart area (yellow usually). The box below will appear with the Density button in the middle of the slide area. Drag it to the right and see the time scale spread out and the bars get longer in the display.

Timescale Definition	×
Density:	
•	۲.
Start date: SD - 2₩ ▼ End date: FD + 1M ▼ Font: Arial, 8, 8 ▼	OK Cancel Help
✓ <u>C</u> alendar dates Minimum time <u>u</u> nit: Days	
Show fiscal years Start Month: October	
Show manufacturing <u>w</u> eeks	
Show <u>d</u> ay of week	
<u>□ O</u> rdinal dates	
U <u>n</u> it: Weeks	
O <u>r</u> dinal start: SU +OD	

Click on OK when the bars are all still on the present screen but spread out from there original display.

The calendar is important because we normally have holidays and other non-work periods that need to be subtracted from the number of available work days in a project. Many projects have a need for more than one calendar. For example if you have an activity for concrete only, you may want it on a 7 working day calendar so that curing can take place over the weekend. At the same time perhaps all of the other activities are working on a 5-day per week basis. To access the calendar, click on DATA in the upper menu.



Choose Calendars and you will see the following.



This is calendar 1, the default calendar which is set up, if you didn't change the introductory screen, to work 5 days per week with weeks beginning on Monday. To set up non-work days like Christmas, New Years, and the 4^{th} of July, click on Holidays.

Holidays List			×	
Nonworkperiods:]	ОК	
Start	End	Repeating	Cancel	
		_	Help	
Currentines.				Put the holidays in here. For those holidays that occur on the same date
				year is omitted. If
<u>Start</u>	End	Repeating		holidays span more than one day like Thanksgiving, enter and Start and End date for the period.

<u>Practice 1.6</u>

- 1. Enter the 4th of July, Christmas Day, and New Years day as holidays.
- 2. Enter Thanksgiving for this year as a holiday.
- 3. Print a copy of your calendar 1 for four months beginning this month.
- 4. Submit the calendar to the TA when you have printed it and put your name on it in Primavera.

1.7 Backing Up the Project

Although we will not need to retrieve today's project in the future, we will practice backing the project up and restoring it.

In order to backup a project you must exit the project. Everything has been saved as you have progressed on the local computer drive. To exit the project but not the program go to the Upper menu File and choose Close. You will see the screen below.

Save Layout		
Save layout LT-01 fo	or project LAB1?	

Click on YES.

Now we are back to the original screen.



Select Tools, Project Utilities, Backup.



When you select BACKUP, you will see the menu below. Find your project and put a check mark, [], in the Back up box by clicking on it.

Ba	ck Up				×
Г	From				
	C:\P3WIN\PROJECTS <u>D</u> ir				<u>в</u> аск ир
	Back up the following projects:				Close
	Back up	Name	Title		
		HWY1	Highway Widening	<u> </u>	Help
		PHS1	Phase 1 - Southbound		
		PHS2	Phase 2 - Northbound		
		LAB1			<u>A</u> II
	<u> </u>	LAB2			
	Το				
l	<u>10</u> A-3			Dir I	Overview
	A. 1			<u> </u>	
	Compres	ss files			
	·				
	🔽 Re <u>m</u> ove	e access list	during backup		

It is always wise to compress the files so that they do not take up too much room or require a second disk. You can save your project to a subdirectory on your disk if you have information in the root directory that you would like to retain. Simply add a subdirectory, such as P3, to the file area.

Ba	ck Up				×
E	From ——				
	C:\P3WIN	<u>D</u> ir	<u>B</u> ack up		
	Back up th	he following	projects:		Close
	Back up	Name	Title		
		HWY1	Highway Widening	▲	Help
		PHS1	Phase 1 - Southbound		
		PHS2	Phase 2 - Northbound		
		LAB1			<u>A</u> II
		LAB2			
			•		
E	<u>1</u> o			1	Quantian
	A:\P3			D <u>i</u> r	Uverview
			· · · · · · · · · · · · · · · · · · ·		
	Compres	ss files			
	⊠ Re <u>m</u> ove	access list	during backup		

Click on Back up or hit enter.



Click on OK and watch the files scroll by.

Primavera Project Planner	×
Backup/Restore Utility Copyright @1986-1995 PRIMAVERA SYSTEMS, INC. Bala Cynwyd, PA Erasing destination directory's files. Backing up files to A:\P3. Backed up: LAB1DIR.P3 compressed (91%) Backed up: LAB1AC2.P3 compressed (91%) Backed up: LAB1ACT.P3 compressed (87%) Backed up: LAB1REL.P3 compressed (88%)	
Cancel	

1.5 Restore the Project

To reverse the process and restore your project the next time you want to work on it again go to the Tools, Project Utilities command in the Upper menu. This time select Restore.

R	estore				×
	<u>F</u> rom: Resto	A:\ re the followi	ng projects:	<u>Dir</u>	<u>R</u> estore
	Rest	ore Name	Date of Backup		
		FTM7	Wed Nov 15 08:19:07 1995		Help
					<u>A</u> II
				•	I
	<u>T</u> o:	C:\P3₩IN\ ✓ <u>M</u> erge di ✓ Re <u>s</u> tore ✓ Restore	PROJECTS ctionaries from subproject abular and graphic report specifications external relationships from subproject	<u>Di</u> r	

Again put a check mark in the box under Restore and the files will be restored to your local computer.

This is enough for today. Go and have an enjoyable weekend.