

The background features abstract, overlapping green geometric shapes, primarily triangles and polygons, in various shades of green, creating a modern and dynamic look. The shapes are layered, with some appearing more prominent than others, and they extend from the edges towards the center of the slide.

Module 3

Software Requirement Specification

The common questions that come into the mind of a project manager at the start of the project are:

- ▶ How much work is to be estimated (scope).
- ▶ How to estimate the project (techniques).
- ▶ How much time it will require to complete the project (Schedule).
- ▶ Who will be doing the project (resources)?
- ▶ What is the budget required to deliver the project (cost)?
- ▶ Any intermediary dependencies that may delay or impact the project (Risks).

Software Project Estimation:

- ▶ *Estimating is, by definition, a guess about the future.*
- ▶ The **fact is** that the majority of software projects aren't delivered on time, run over budget, and end up with fewer features than originally planned.

- ▶ Estimating software projects poorly has many other side effects:
- ▶ Depending on the contract in place, clients may have to pay more than they had budgeted.
- ▶ The product itself may suffer, as corners get cut trying to deliver within unrealistic time and budget constraints.
- ▶ The development team's morale can be negatively affected, as they suffer from the stress and pressure of trying to meet unrealistic expectations.
- ▶ A project may never be completed if funding runs out.

Estimation is based on –

- ▶ Past Data/Past Experience
- ▶ Available Documents/Knowledge
- ▶ Assumptions
- ▶ Identified Risks

The four basic steps in Software Project Estimation are –

- Estimate the size of the development product.
- Estimate the effort in person-months or person-hours.
- Estimate the schedule in calendar months.
- Estimate the project cost in agreed currency.

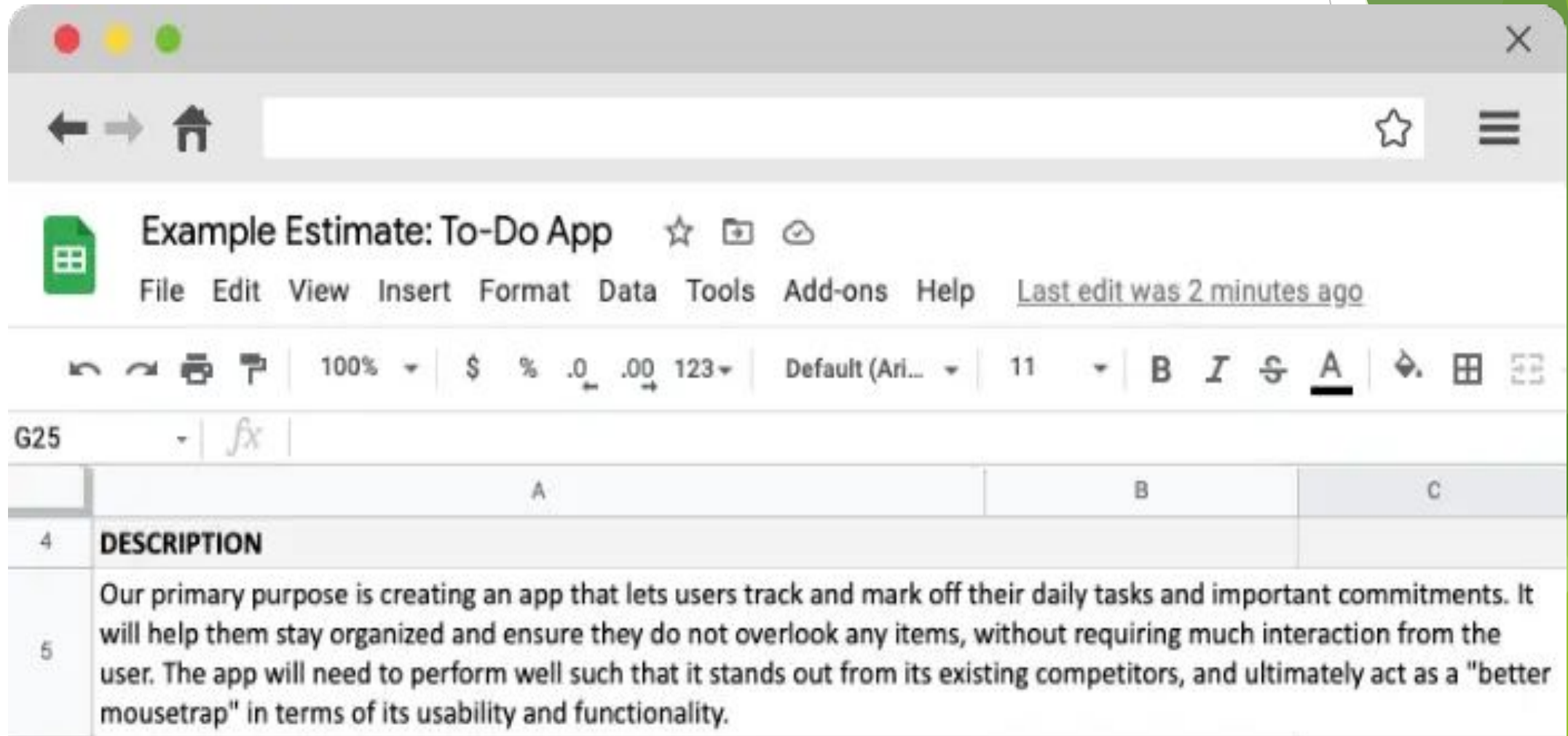
Use Case 1: Staff Augmentation

- ▶ Your client is midway through building an application and they've decided they want to augment the project team by adding a Designer (part-time) and Senior Developer (full-time).
- ▶ The client has set aside a budget of \$15k USD/month.

Requirements:

- ▶ The requirements stage for a staff augmentation contract is often straightforward.
- ▶ In this case, we'll assume the client has already defined the skills, hours and rates they require.
- ▶ With that information to hand, head over to the Estimator Template, make a copy of the spreadsheet and customize it with your project requirements.

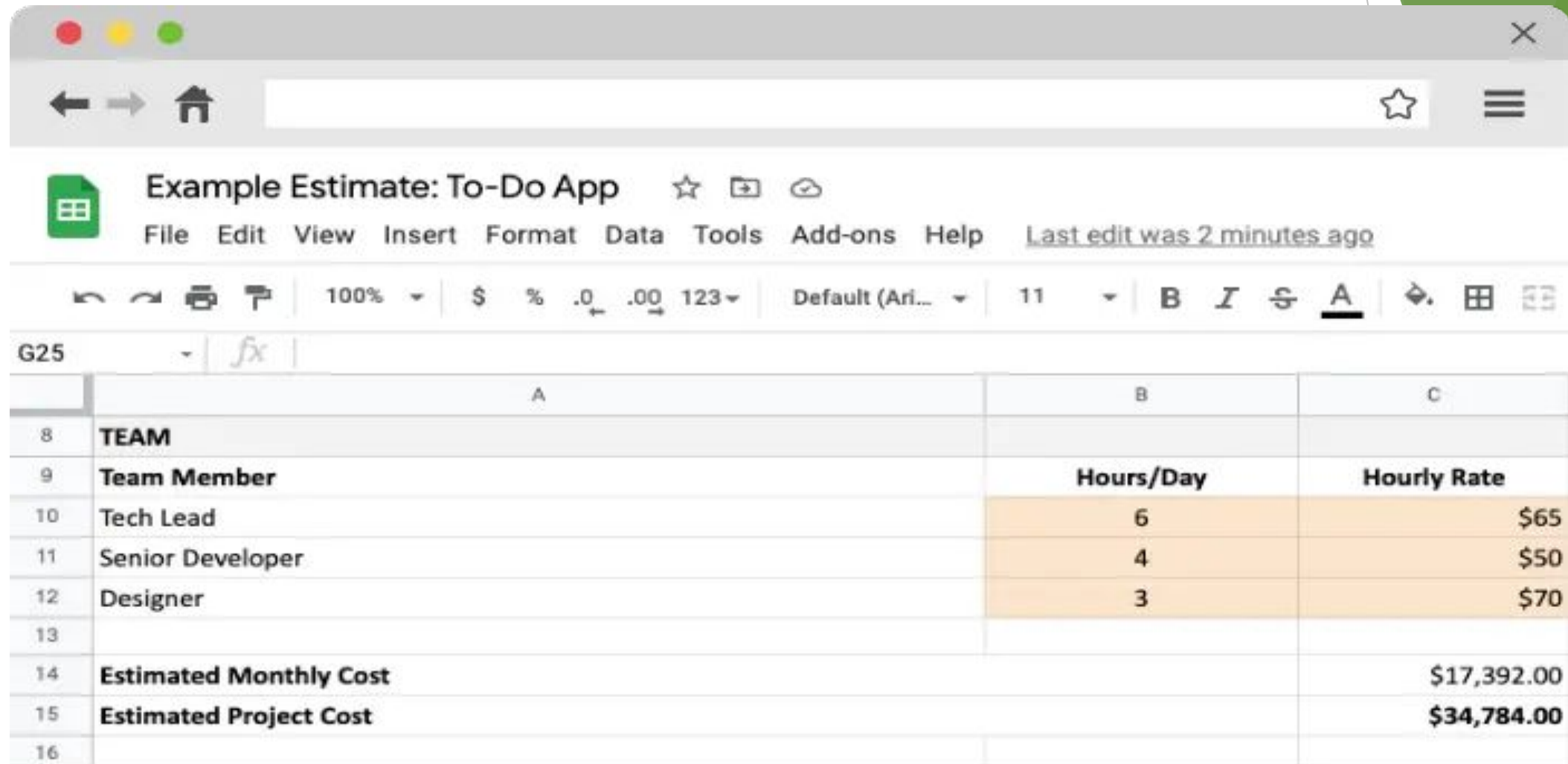
Project Description:



The screenshot shows a web browser window displaying a Google Docs document. The document title is "Example Estimate: To-Do App". The menu bar includes File, Edit, View, Insert, Format, Data, Tools, Add-ons, and Help. The status bar indicates "Last edit was 2 minutes ago". The document content is a table with 3 columns (A, B, C) and 5 rows. Row 4 is the header row with the title "DESCRIPTION" in column A. Row 5 contains the project description text in column A.

	A	B	C
4	DESCRIPTION		
5	Our primary purpose is creating an app that lets users track and mark off their daily tasks and important commitments. It will help them stay organized and ensure they do not overlook any items, without requiring much interaction from the user. The app will need to perform well such that it stands out from its existing competitors, and ultimately act as a "better mousetrap" in terms of its usability and functionality.		

Team Details:



The screenshot shows a Google Sheets interface with a spreadsheet titled "Example Estimate: To-Do App". The spreadsheet has three columns: A, B, and C. The data is organized into rows, with the first three rows (8, 9, 10) defining the team structure, and the last three rows (14, 15, 16) summarizing the costs. The team members and their hourly rates are listed in column A, while their hours per day and the resulting monthly and project costs are in columns B and C respectively.

	A	B	C
8	TEAM		
9	Team Member	Hours/Day	Hourly Rate
10	Tech Lead	6	\$65
11	Senior Developer	4	\$50
12	Designer	3	\$70
13			
14	Estimated Monthly Cost		\$17,392.00
15	Estimated Project Cost		\$34,784.00
16			


Conclusion:

- ▶ Once I'm done, the Estimated Monthly Cost is calculated at the bottom.
- ▶ At close to \$17,392, it's slightly above the client's budget.
- ▶ I have a few options though, I can chat with the client and explain they will need to up the budget to secure the right candidates.
- ▶ I could try to get lower rates (by negotiating with the contractors or finding cheaper ones, though cheaper sometimes means less productive) or I can reduce the hours/day for one or both of the team members.

- ▶ As this is a Staff Augmentation project, you don't need to fill out the Tasks section.
- ▶ So that's it, you're done!
- ▶ But what if you're starting a new project, or want a more detailed estimate for a new initiative?

Use Case 2: Project-Based, with Defined Requirements

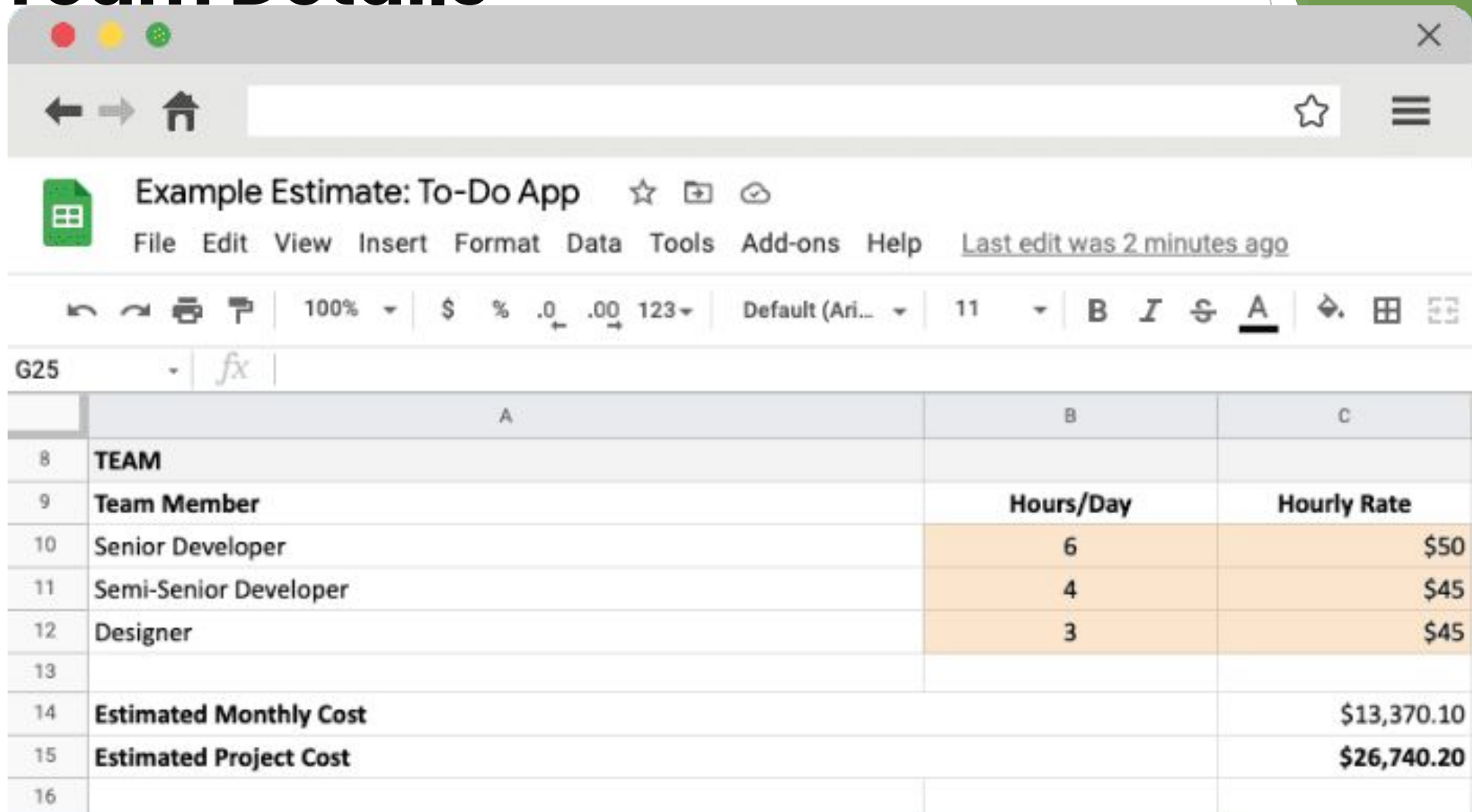
- ▶ Let's use the example of building a ToDo app:
- ▶ **Foundational Tasks**
- ▶ Think of these as the common tasks associated with developing an app that isn't specific to its business logic or routine coding and development procedure.

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- The background of the slide features abstract, overlapping green geometric shapes, primarily triangles and polygons, in various shades of green, creating a modern and dynamic visual effect.
- ▶ At a minimum, most new projects will require the following to get off the ground:
 - ▶ UI Design
 - ▶ Database architecture
 - ▶ Development environment setup
 - ▶ Hosting and Deployment

Choosing An Approach

- ▶ by breaking down the team, and by breaking down the project tasks. A team estimate is a top-down approach. For example, “Who will I have on my team and for how long?” This is estimation from an Agile perspective. A task estimate is a bottom-up approach that comes more from the Waterfall school of planning. Working through both these methods independently means we can then compare and contrast the two estimates and, if they differ, try and work out why. It’s essentially a way to look at your estimate from two different perspectives and validate your numbers.

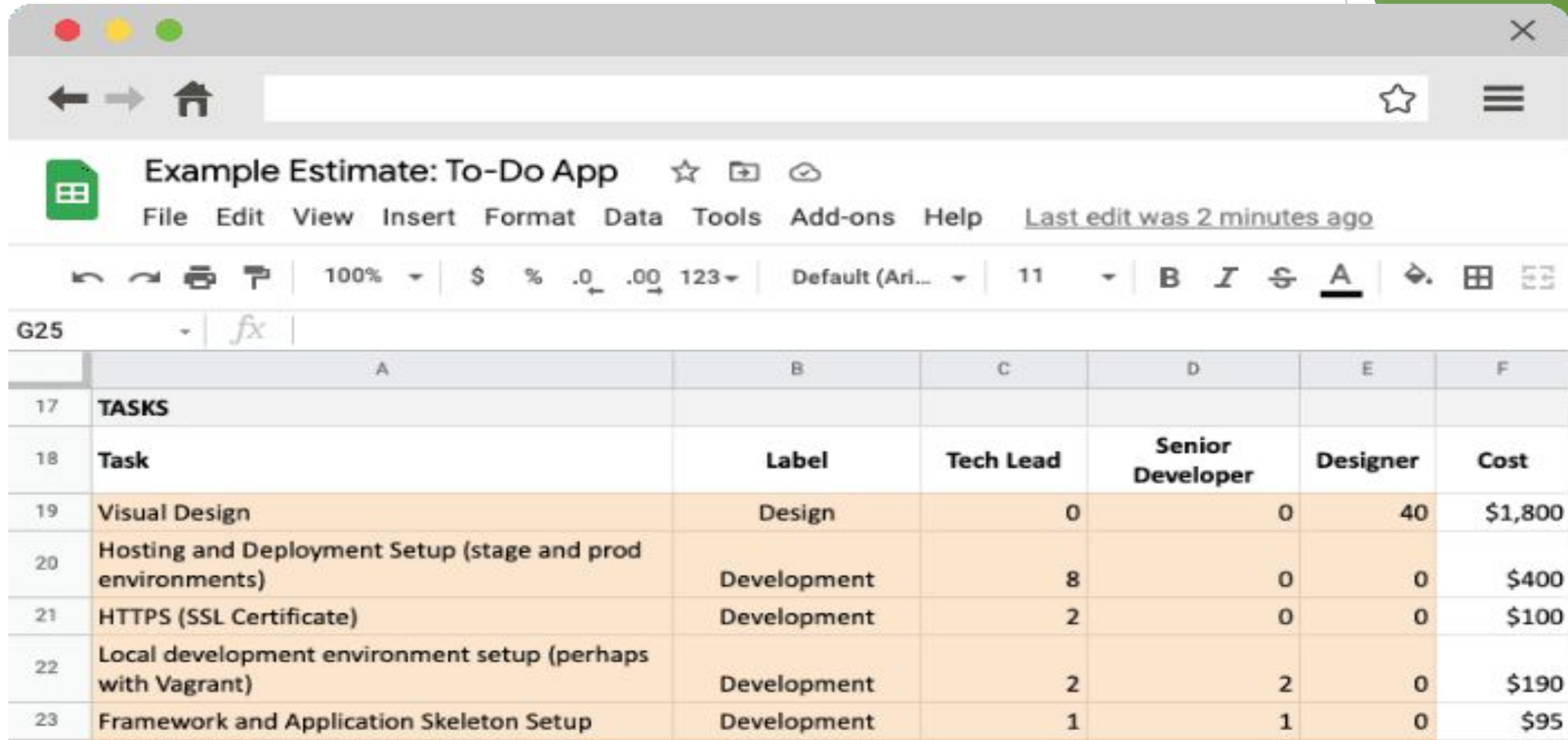
#1: Team Details



The screenshot shows a Google Sheets interface with a spreadsheet titled "Example Estimate: To-Do App". The spreadsheet has three columns: A, B, and C. The data is as follows:

	A	B	C
8	TEAM		
9	Team Member	Hours/Day	Hourly Rate
10	Senior Developer	6	\$50
11	Semi-Senior Developer	4	\$45
12	Designer	3	\$45
13			
14	Estimated Monthly Cost		\$13,370.10
15	Estimated Project Cost		\$26,740.20
16			

#2: Task Details



The screenshot shows a Google Sheets interface with a spreadsheet titled "Example Estimate: To-Do App". The spreadsheet contains a table with task details. The table has columns for Task, Label, Tech Lead, Senior Developer, Designer, and Cost. The tasks listed are Visual Design, Hosting and Deployment Setup (stage and prod environments), HTTPS (SSL Certificate), Local development environment setup (perhaps with Vagrant), and Framework and Application Skeleton Setup.

	A	B	C	D	E	F
17	TASKS					
18	Task	Label	Tech Lead	Senior Developer	Designer	Cost
19	Visual Design	Design	0	0	40	\$1,800
20	Hosting and Deployment Setup (stage and prod environments)	Development	8	0	0	\$400
21	HTTPS (SSL Certificate)	Development	2	0	0	\$100
22	Local development environment setup (perhaps with Vagrant)	Development	2	2	0	\$190
23	Framework and Application Skeleton Setup	Development	1	1	0	\$95

Which Approach Is Better for Software Projects?

- ▶ If you are primarily focused on hiring a team and not worried about how much a particular project will cost, then you can simply do the Team Planning part.
- ▶ However, if you are primarily looking at getting a particular project completed within a certain budget, we recommend doing both.

By definition:

- ▶ What is software project estimation?
- ▶ What is software project estimation? Literally, estimation is a process to predict the time and the cost that a project requires to be finished appropriately.

- ▶ Project Manager Application Link:
<https://www.projectmanager.com/templates/project-estimate-template>
- ▶ Simplilearn Link:
<https://www.simplilearn.com/project-estimation-techniques-article>
- ▶ Estimation Website link:
<https://boosthigh.com/software-requirements-specification/>

