



Finance for Growth

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Learning Objectives

- Resource allocation and Cost estimation
- Preparing budget and Monitoring progress
- Financial forecasting techniques

Application of concepts

- Examples: Amazon's Approach to Financial Innovation, Wipro's Approach to Working Capital Management
- Case Study: Infosys' Financial Transparency and Investor Relations
- Interactive Exercise - Budgeting and Resource allocation projection in spreadsheet

Case Study: Infosys drivers of valuation <https://drive.google.com/file/d/1VNfLo657TdpvOPQ0mxM3BFfCyd6osGER/view?usp=sharing>

Finance for Growth

Learning Objective:

Equip with the essential knowledge and skills required to forecast project success and assess what value will be returned - allocate, forecast, and optimize costs to project areas effectively

Learning Outcomes:

- Understand the fundamentals of budgeting and financial forecasting
- Differentiate between various types of budgets and their applications
- Use monitoring techniques like the Earned Value Method to track project progress and financial performance

Session Duration: 4 hours + Guest + Q&A

2:30 pm to 4 pm

Presentation and Case Study (60 minutes)

Interactive Exercise (30 minutes)

Break

4:15 pm to 6:30 pm

Presentation and Group discussion (75 minutes)

Interactive Exercise (30 minutes)

Guest speaker / Panel Discussion (30 minutes)

Open floor: Q&A and further engagement

Pre read for the session

1. Infosys drivers of valuation <https://drive.google.com/file/d/1VNfLo657TdpvOPQ0mxM3BFfCyd6osGER/view?usp=sharing>

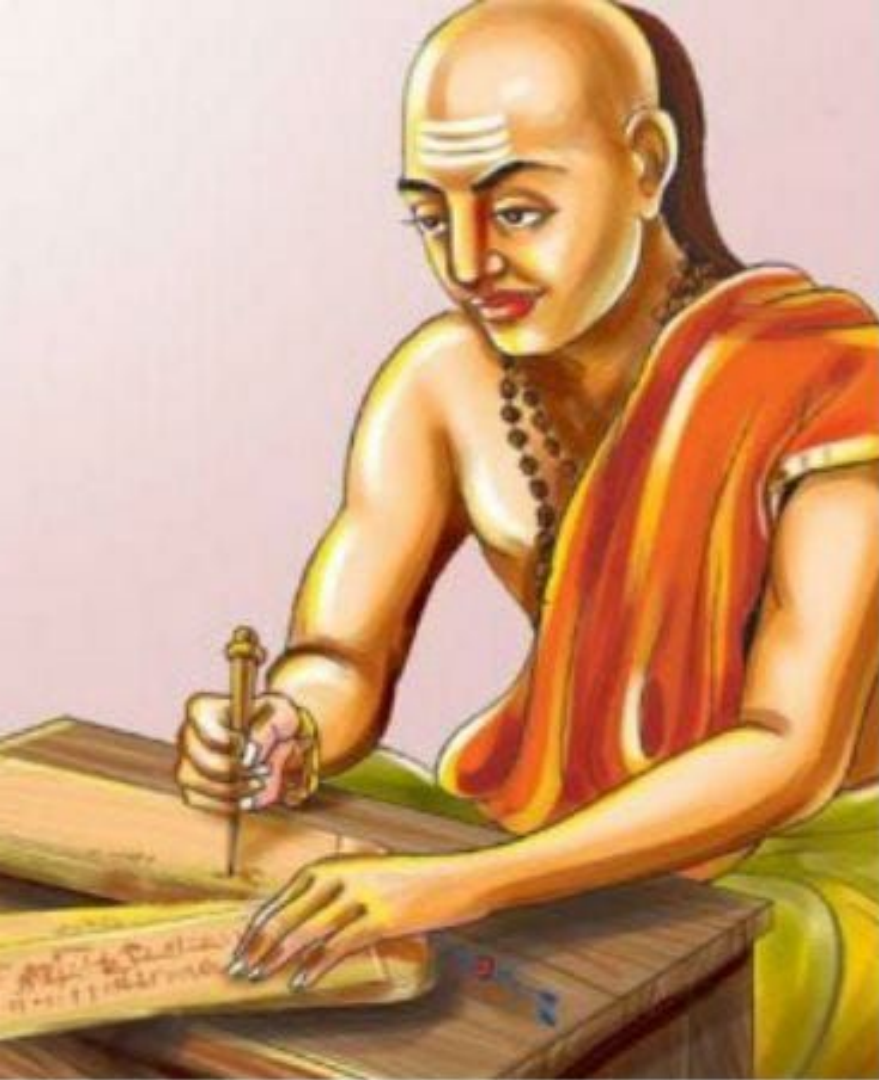
Learning Objective 1

Resource Allocation and Cost Estimation

Skill Sets to acquire:

Budget Preparation, Resource Management,
Financial Planning





"योजनायां सुसंस्थिते कार्यं नियतफलम्"

A well-planned work produces good results, even in adverse conditions

Chanakya's Arthashastra

Book 14, Chapter 8

Introduction to Budgeting and Financial Planning

Budget is for a **specific goal** which organization wants to achieve. Each team member plays a specific role to reach that goal.

Budgeting is the process of preparing and overseeing a financial plan that estimates income and expenses over a defined period. It ensures a team or department has resources to achieve its goals. It is a tool to

- Communicating expectations and goals to stakeholders
- Mobilizing teams and departments around organizational objectives
- Assessing group and individual performance
- Sharing with vendors to determine how much to credit the company in supplies
- Gaining insight into an organization's financial health
- Allocating resources strategically and appropriately

Generally **created for an year**. Anything beyond three years is taken with a pinch of salt.

Purpose of budget - Planning and control

Resource allocation and Cost estimation

Understanding the commercial aspects of a project is crucial

Planning

1. **Cost Estimation:** Accurately estimate current costs of hardware, software, personnel & overhead costs (finance help)
2. **Budgeting:** Allocating funds to different tasks and activities, within overall budget
3. **Procurement and Purchasing:** Understand procurement process, identifying requirements, selecting vendors & managing contracts for procuring hardware, software, and other resources

Template for cost estimation of resources:

https://docs.google.com/spreadsheets/d/150D4AjzaDRcL7wgBTYrwUI6zZC_-MjyF/edit?gid=906418175#gid=906418175

Resource allocation and Cost estimation (cont...)

Understanding the commercial aspects of a project is crucial

Execution

1. **Vendor Management:** Negotiate contracts, manage vendor / service providers relationships, and ensure that deliverables meet quality standards within budget constraints
2. **Billing and Invoicing:** Includes tracking project expenses, generating invoices, and ensuring timely payments

Resource allocation and Cost estimation (cont...)

Understanding the commercial aspects of a project is crucial

Monitoring

1. **Resource Management:** Review & allocate personnel, equipment etc. to maximizes productivity and minimizes waste
2. **Risk Management:** Conducting risk assessments, developing risk mitigation strategies, and monitoring risks throughout the duration of the program

Resource Planning Template:

https://docs.google.com/spreadsheets/d/1VxxcVzyg_OoKlGe50YF06mrQQJ6kls3G/edit?gid=1706329945#gid=1706329945

Examples of non-standard practices

Misaligning resources with strategy at Yahoo:

Allocating resources to areas that don't support the company's core strategy. Example: Yahoo's acquisition strategy in the early 2000s is often cited as a case of poor resource allocation. The company spent billions on acquisitions like Broadcast.com and Geocities, which didn't align well with its core business and ultimately provided little value.

Failing to consider what else could be done with the resources being allocated at Microsoft

Microsoft's investment in Windows Phone and the acquisition of Nokia's phone business is a case of misallocated resources. The company spent billions on this initiative, which ultimately failed, while potentially missing opportunities in other areas.

Failing to account for all potential expenses or being overly optimistic about costs

The Boston Big Dig project, while not a company, is a classic example of cost underestimation. Initially estimated at \$2.6 billion, the final cost was nearly \$15 billion, leading to significant financial strain and public criticism

Focusing only on direct costs while overlooking indirect expenses. Example: Uber's initial cost estimates for driver acquisition and retention didn't fully account for the long-term costs of driver incentives and retention programs. This led to ongoing challenges in achieving profitability.

Examples of non-standard practices

Simply adding a percentage to last year's budget without reassessing needs at GE

General Electric (GE) under Jeff Immelt was criticized for its budgeting practices, which often involved setting aggressive top-down targets without a realistic assessment of market conditions or business unit capabilities.

Creating rigid budgets that don't allow for adaptation to changing circumstances.

Toys "R" Us failed to adapt its budgeting and financial planning to the rise of e-commerce, continuing to invest heavily in large physical stores even as consumer shopping habits were changing dramatically.

Failing to plan for various potential outcomes, including worst-case scenarios.

Lehman Brothers' financial planning before the 2008 financial crisis failed to adequately account for the possibility of a significant downturn in the housing market. This lack of scenario planning contributed to the firm's collapse.

Focusing on profit projections without ensuring adequate cash flow.

WeWork's financial planning emphasized rapid growth and future profitability but neglected the importance of sustainable cash flow. This oversight became apparent during its failed IPO attempt in 2019.

Example - Amazon's approach to Financial Innovation

Amazon started as an online bookstore. From the outset, Jeff Bezos, the founder, emphasized a long-term strategy focusing on growth over immediate profitability. This approach involved reinvesting profits into expanding the business rather than declaring dividends. The rationale was to gain market share and achieve scale, which would later translate into leveraging efficiencies and dominating various sectors

- **1990s onwards:** Amazon began using data analytics to drive many of its financial decisions. This ranged from dynamic pricing models to inventory management, which allowed Amazon to keep costs low and manage operational efficiencies effectively. Leveraging big data and machine learning enabled Amazon to understand consumer behavior better, optimize logistics, and outpace competitors in retail and later in cloud computing.
- **Use of Convertible Bonds:** Amazon has creatively used financial instruments such as convertible bonds to raise capital without immediately diluting shareholder value. Convertible bonds are particularly attractive during times when stock prices are high, as they can be converted into stock at a later date.
- **Strategic Use of Debt:** Amazon has maintained a relatively conservative leverage ratio compared to its cash flow generation capabilities. This prudent use of debt has allowed it to invest in technology, acquisitions, and global expansion while keeping the cost of capital low.

Common follow-up questions

1. "What are the key factors to consider when allocating resources for a new project?"
2. "How do accurate cost estimations impact the overall budgeting process?"
3. "Can you explain the difference between direct and indirect costs in resource allocation?"
4. "What methods can be used to improve the accuracy of cost estimation?"



Assessment



Assignment 1

Which cost estimation technique uses historical data from similar projects?

- A) Bottom-Up Estimating
- B) Parametric Estimating
- C) Analogous Estimating
- D) Three-Point Estimating



Explanation Assignment 1

A) Bottom-Up Estimating:

- **Explanation:** Bottom-Up Estimating involves estimating the cost of individual tasks or work packages and then summing them to get the total project cost. This method is highly detailed and time-consuming but provides a more accurate estimate. It does not rely on historical data from similar projects but rather on a granular analysis of the specific project tasks.

B) Parametric Estimating:

- **Explanation:** Parametric Estimating uses statistical relationships between historical data and other variables (e.g., cost per unit, time per unit) to estimate project costs. While it does use historical data, it is more formula-driven and is based on quantifiable parameters rather than drawing a direct analogy from previous projects.

D) Three-Point Estimating:

- **Explanation:** Three-Point Estimating involves using three different estimates to calculate a cost: the optimistic, the pessimistic, and the most likely. These estimates are then combined (usually through a weighted average) to get a final estimate. This technique does not directly rely on historical data from similar projects, but rather on assessing uncertainty and risks in the estimates.

In contrast, **Analogous Estimating** (Option C) specifically involves using the actual cost data from similar past projects as a basis to estimate the costs of the current project, making it the correct choice for the question.

Assignment 2

What is the primary purpose of a 'contingency reserve' in cost estimation?

- A) To cover unknown risks
- B) To increase project profits
- C) To reduce overall project costs
- D) To manage project scope changes



Explanation Assignment 2

B) To increase project profits:

- **Explanation:** The primary purpose of a contingency reserve is not to increase profits but to provide a buffer against unforeseen risks. It's a part of the budget set aside to handle unexpected costs that could arise during the project, ensuring the project stays on track. Increasing profits is not a purpose of a contingency reserve.

C) To reduce overall project costs:

- **Explanation:** A contingency reserve does not aim to reduce costs; rather, it is included in the budget to cover potential unexpected expenses. Its presence can actually increase the overall budget, but it serves to protect against overruns due to unforeseen events.

D) To manage project scope changes:

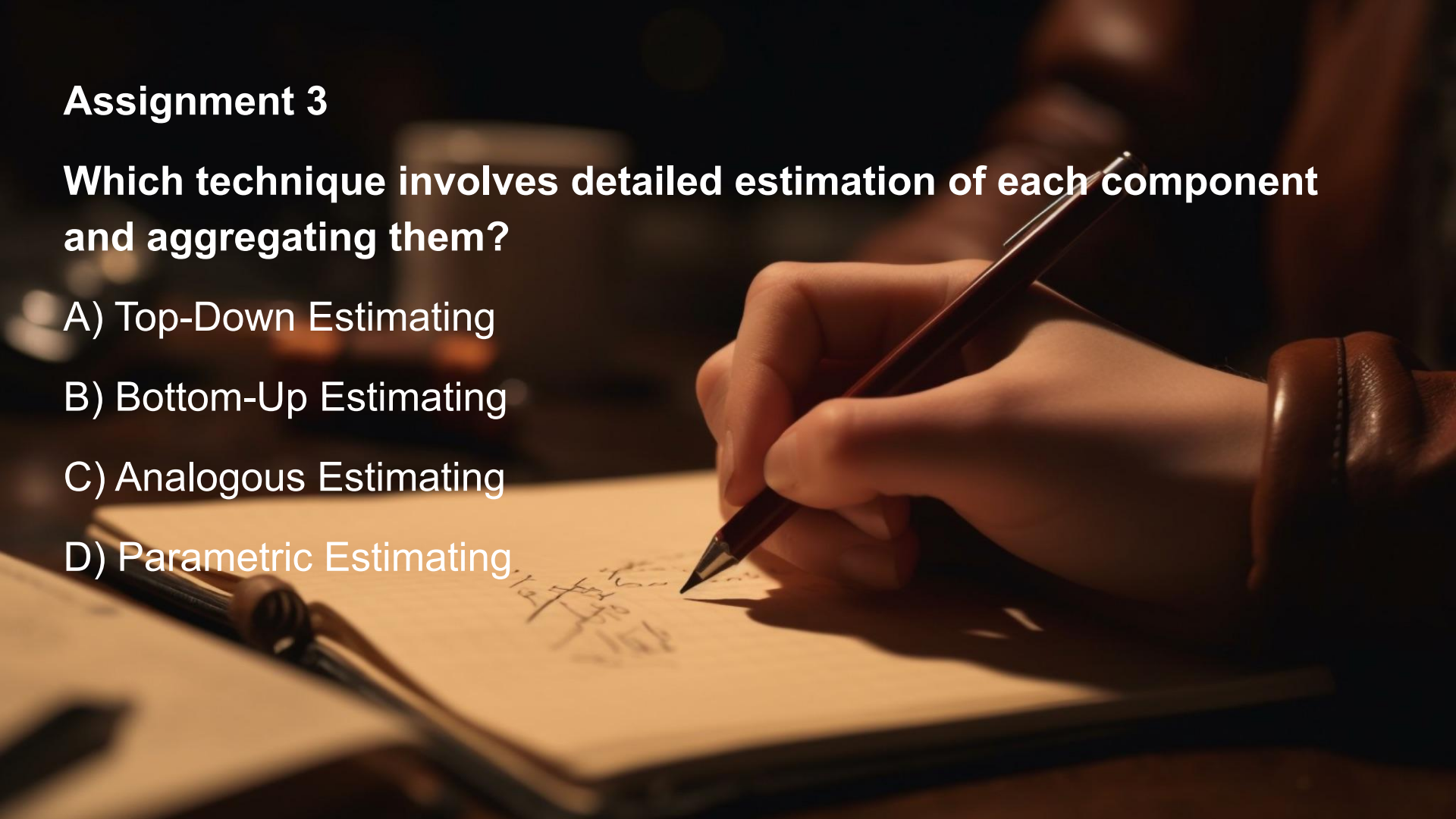
- **Explanation:** Managing project scope changes typically involves using a **management reserve** rather than a contingency reserve. The contingency reserve is specifically for risks that are identified as possible but not certain, not for scope changes, which often require a different form of budget adjustment.

The **contingency reserve** is therefore intended to cover unknown risks that may impact the project, making **Option A** the correct answer

Assignment 3

Which technique involves detailed estimation of each component and aggregating them?

- A) Top-Down Estimating
- B) Bottom-Up Estimating
- C) Analogous Estimating
- D) Parametric Estimating



Explanation Assignment 3

A) Top-Down Estimating:

- **Explanation:** Top-Down Estimating involves estimating the overall cost of the project by considering it as a whole, rather than breaking it down into individual components. The estimate is then divided among the different parts of the project. This approach is generally less detailed and less accurate than Bottom-Up Estimating.

C) Analogous Estimating:

- **Explanation:** Analogous Estimating relies on using historical data from similar projects to estimate the cost of the current project. It is a quicker method and less detailed than Bottom-Up Estimating. It does not involve detailed estimation of each component.

D) Parametric Estimating:

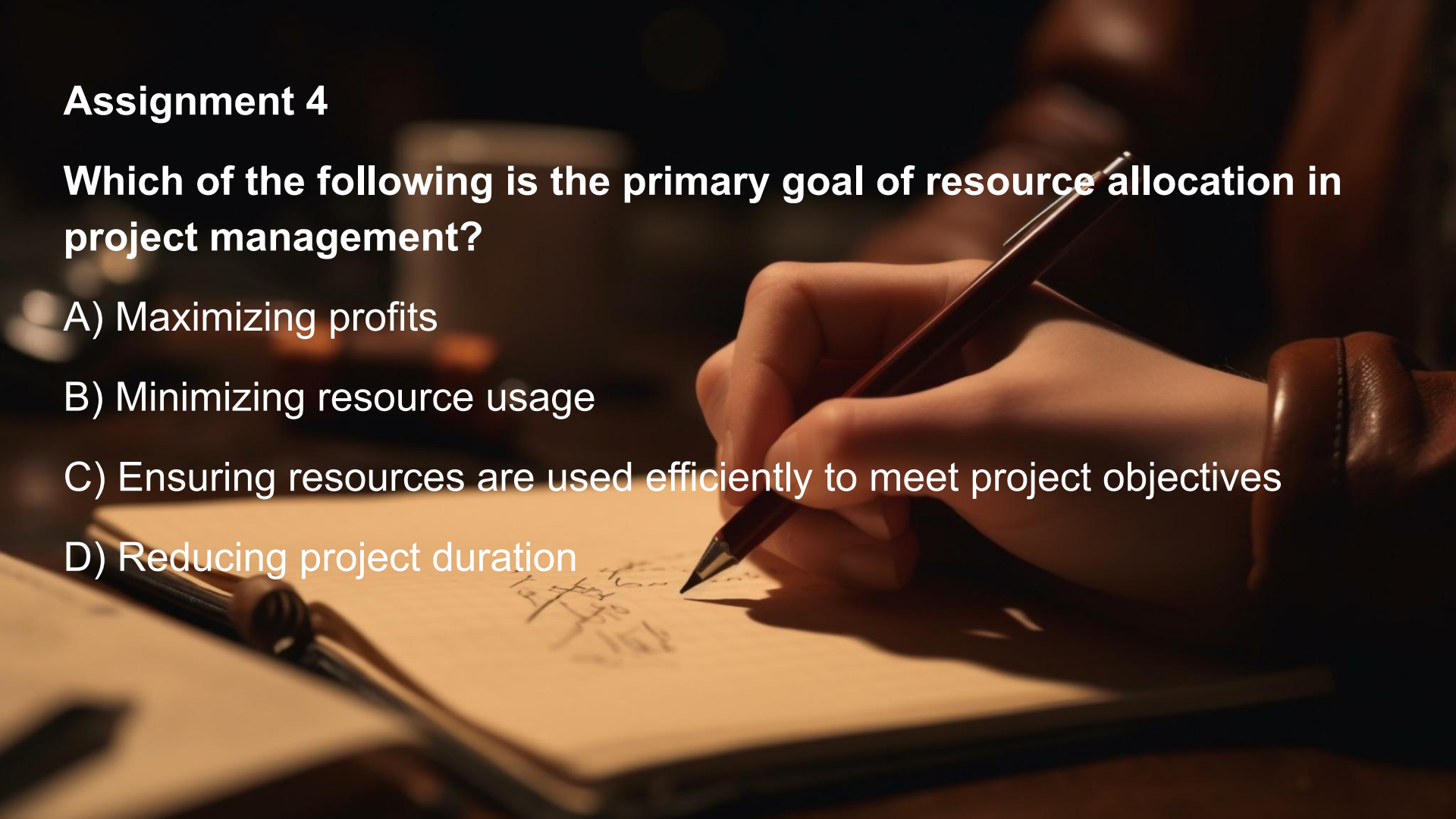
- **Explanation:** Parametric Estimating uses statistical relationships between historical data and specific parameters (like cost per unit or time per unit) to estimate project costs. This method is more formula-based and does not involve breaking down the project into individual components for detailed estimation.

Bottom-Up Estimating (Option B) involves creating detailed estimates for each component of the project and then aggregating these to arrive at the total project cost, making it the correct answer for this question.

Assignment 4

Which of the following is the primary goal of resource allocation in project management?

- A) Maximizing profits
- B) Minimizing resource usage
- C) Ensuring resources are used efficiently to meet project objectives
- D) Reducing project duration



Explanation Assignment 4

Maximizing profits:

- **Explanation:** While profitability might be a concern in some projects, the primary goal of resource allocation is not specifically to maximize profits. Resource allocation focuses on distributing and utilizing resources effectively to achieve project goals, which may or may not directly impact profits.

B) Minimizing resource usage:

- **Explanation:** Minimizing resource usage could be a consideration, but it is not the primary goal. The main focus is on using the allocated resources efficiently to ensure that the project objectives are met. Simply minimizing resource usage without considering efficiency and effectiveness could compromise project success.

D) Reducing project duration:

- **Explanation:** While reducing project duration might be a result of efficient resource allocation, it is not the primary goal. Resource allocation is more concerned with ensuring that resources are used effectively to meet the overall project objectives, which could involve balancing time, cost, and quality considerations.

Ensuring resources are used efficiently to meet project objectives (Option C) is the primary goal of resource allocation in project management, making it the correct answer.

Assignment 5

What does 'resource leveling' aim to achieve in project management?

- A) Minimizing resource usage
- B) Balancing resource demand with available supply
- C) Increasing project scope
- D) Reducing project costs



Explanation Assignment 5

A) Minimizing resource usage:

- **Explanation:** Resource leveling does not specifically aim to minimize resource usage. Instead, it focuses on adjusting the project schedule or the allocation of resources to balance the demand with the available supply. Minimizing usage might be a secondary effect, but it's not the primary goal.

C) Increasing project scope:

- **Explanation:** Resource leveling is not concerned with increasing the project scope. In fact, expanding the scope typically requires additional resources rather than balancing the existing ones. Resource leveling aims to optimize the use of resources within the current scope, not to expand it.

D) Reducing project costs:

- **Explanation:** While resource leveling might help in managing costs by preventing over-allocation and burnout, its primary goal is not to reduce costs. Instead, it focuses on ensuring that resources are used effectively and in alignment with their availability. Cost reduction could be a byproduct, but it is not the main objective.

Balancing resource demand with available supply (Option B) is the primary aim of resource leveling in project management, making it the correct answer.

Learning Objective 2

Preparing Budget and Monitoring Progress

Skill Sets to acquire:

Budget Monitoring, Earned Value Method,
Variance Analysis



Process for budget preparation

Alignment:

- **Use templates & standardized formats:** This promotes consistency and makes consolidation easier.
- **Document assumptions:** Clearly note the basis for your projections to aid in future analysis and adjustments.

Process:

- **Regularly compare actual vs. budget:** Conduct variance analysis to improve future budgeting accuracy.
- **Collaborate across departments:** Ensure communication between finance, operations, sales, and other relevant teams.

Maintenance:

- **Stay informed about industry trends:** Keep abreast of market conditions that might impact your budgets.
- **Consider external factors:** Account for economic indicators, regulatory changes, and competitive landscape in your projections.

Types of Budgets

Operating Budget

- Focus on day-to-day operations & cover revenue and expenses related to ongoing activities e.g., sales budget, production budget, marketing budget etc.

Capital Budget

- Deal with feasibility and long-term investments in assets such as machinery, equipment, or infrastructure e.g. investment in new technology

Cash flow Budget

- Predict cash inflows and outflows over a specific period to manage liquidity, ensuring sufficient cash to meet its obligations e.g.

*30 days to finish work + 60 days payout terms = 90 days **typical cash cycle***

Review of Operating budget

Alignment

- **Analyze historical trends:** To identify patterns & anomalies that might affect projection
- **Align with strategic goals:** Everyone works to meet same goals
- **Involvement of various department heads:** to ensure budget reflects operational realities

Process

- **Use activity-based costing:** for accurate cost allocation, especially for complex operations
- **Use zero-based budgeting periodically:** Instead of always building on the previous year's budget. This helps eliminate unnecessary expenses and justifies each cost

Maintenance

- **Build in contingencies:** Include a buffer for unexpected expenses or revenue shortfalls
- **Use rolling forecasts:** Update your budget regularly (e.g., quarterly) to reflect changing conditions

Review of Capital budget

Projects Assessment

- **Use multiple evaluation methods:** Employ various financial metrics like NPV, IRR, and payback period to assess projects.
- **Consider non-financial factors:** Include qualitative benefits like improved safety or brand perception in your assessments.
- **Account for total cost of ownership:** Include ongoing maintenance and operational costs, not just initial purchase price.

Project prioritization

- **Prioritize projects:** Rank capital projects based on strategic importance, ROI, and urgency.
- **Scenario analysis:** Create best-case, worst-case, and most likely scenarios for major projects.

Investment planning

- **Stagger investments:** Plan the timing of capital expenditures to manage cash flow effectively.
- **Review past projects:** Analyze the performance of previous capital investments to improve future forecasting.

Review of Cash Flow budget

Alignment

- **Map out seasonality:** Identify cyclical patterns in cash inflows and outflows.
- **Build multiple scenarios:** Create best-case, worst-case, and expected case scenarios to prepare for different outcomes.

Process

- **Consider payment terms:** Account for the timing differences between when sales are made and when cash is received, and when expenses are incurred versus paid.
- **Incorporate non-operational cash flows:** Include items like tax payments, dividend payouts, and debt repayments.

Maintenance

- **Use ratio analysis:** Monitor key ratios like the cash conversion cycle to identify potential cash flow issues.
- **Use a rolling 13-week cash flow forecast:** This provides a detailed short-term view of cash needs and surpluses.

Example - Wipro's approach to Working Capital Mgmt.

Key considerations

- **Client Payment Terms:** Structure payment terms that are mutually beneficial. This may include milestone-based payments for large projects, which help in regular cash inflows. Its is measured by DSO (Days Sales Outstanding).
- **Project Delivery Timelines:** Uses advanced project management tools & methods to monitor project progress & performance, ensuring that deliverables are met promptly, which aids in quicker invoicing
- **Cost Management:** Strict cost control measures & regular audits ensure that project costs are kept within budget, which helps controlling operating cost, have good margins & maintain +ve working capital cycle

Unique practices

- **Technology-Driven Efficiency:** Automation and AI in invoice processing & receivables management minimizes delays and errors, speeds up the collection process, and reduces the days sales outstanding (DSO)
- **Dynamic Cash Flow Forecasting models:** Using historical data & predictive analytics to forecast future cash flow scenarios under different conditions. This helps in making informed decisions about investments, expenses & cash management.
- **Vendor Financing and Relationships:** To extend payment terms aligned with its cash inflows, manage payables more effectively without straining vendor relationships

Ability to seize new business opportunities without relying heavily on external financing, or getting favourable credit terms with lenders if need be.

Monitoring Progress - Identify risk early, take corrective action

Project Monitoring for deliverables, deadlines, and financials

- Tracking a project's scope, timelines, budget, progress, and critical success metrics

Progress Monitoring

- **Resource Management:** Review & allocate personnel, equipment etc. to maximizes productivity and minimizes waste
- **Risk Management:** Conducting risk assessments, developing risk mitigation strategies, and monitoring risks throughout the duration of the program

When things go wrong, Take proactive action, Retrospective actions

What is it not ...

Underestimating expenses or failing to account for all cost categories.

MoviePass, the movie ticket subscription service, severely underestimated the costs associated with its unlimited movie plan. This led to unsustainable losses and eventually contributed to the company's bankruptcy in 2020.

Creating budgets that don't support or reflect the company's long-term strategy.

Nokia's budget allocations in the early 2010s failed to adequately support smartphone development, despite this being a critical strategic need. This misalignment contributed to Nokia's loss of market share in the mobile phone industry.

Focusing on one key performance indicator (KPI) while ignoring others.

Wells Fargo's emphasis on cross-selling metrics led to the creation of millions of fraudulent accounts. The company's narrow focus on this single metric for evaluating performance misled investors about the true nature of its growth and customer relationships.

Common follow-up questions

1. "What steps are involved in preparing a comprehensive budget for a company?"
2. "How can variance analysis be used to monitor budget performance?"
3. "What are some common challenges faced during the budgeting process, and how can they be mitigated?"
4. "How does continuous monitoring and adjustment of the budget contribute to financial stability?"



Assessment



Assignment 1

A 'baseline budget' is used for:

- A) Estimating future costs
- B) Comparing actual expenditures against planned expenditures
- C) Allocating resources
- D) Risk management



Explanation Assignment 1

A) Estimating future costs:

- **Explanation:** A baseline budget is not primarily used for estimating future costs. Instead, it represents the approved budget plan at a specific point in time, against which actual project performance is measured. Future cost estimations are usually done through forecasting methods, not through the baseline budget.

C) Allocating resources:

- **Explanation:** Resource allocation involves distributing available resources to different tasks or phases of the project. While the baseline budget might inform resource allocation decisions, it is not specifically used for this purpose. The baseline budget is more concerned with tracking financial performance rather than directly managing resources.

D) Risk management:

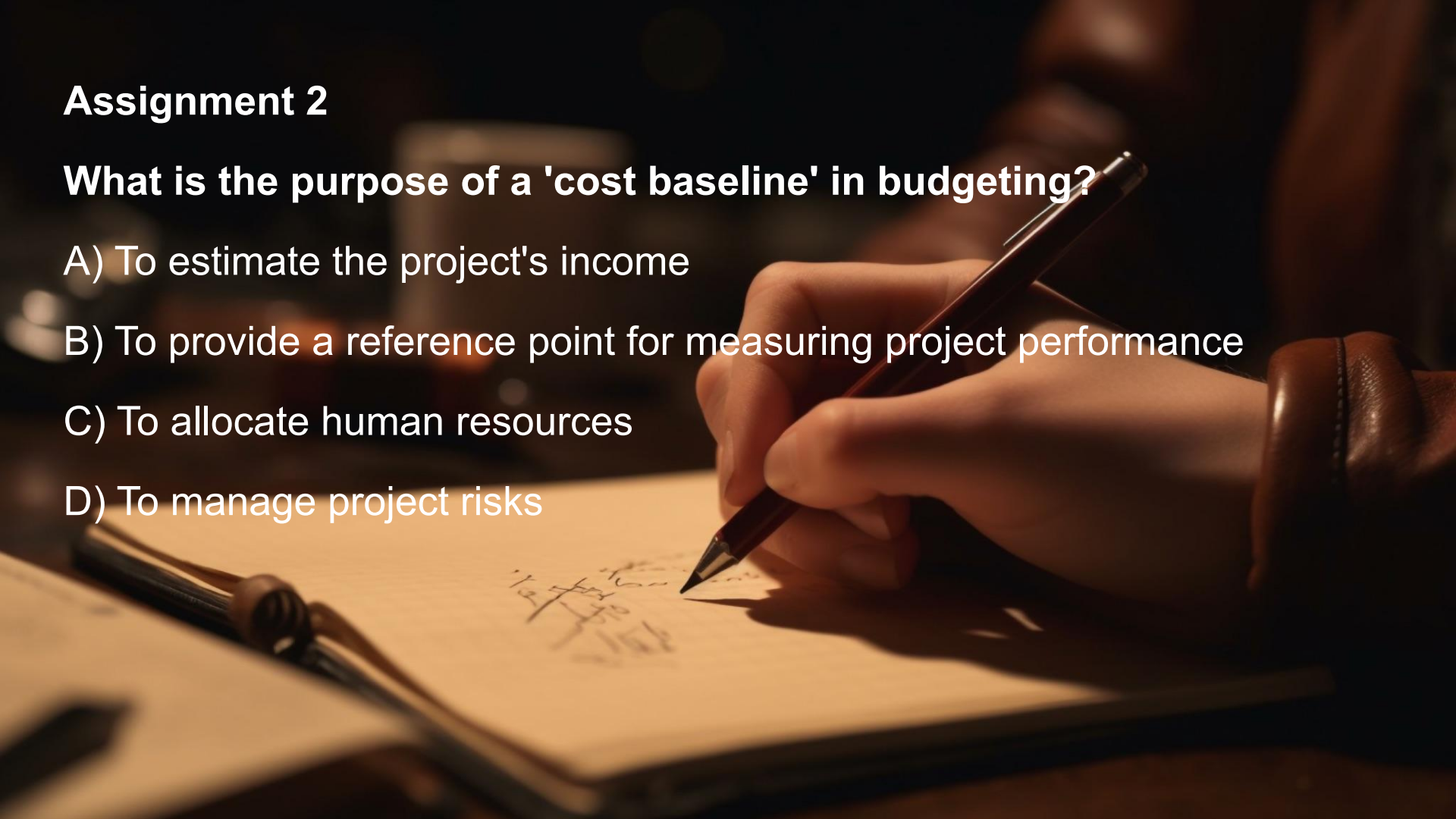
- **Explanation:** Risk management involves identifying, assessing, and mitigating risks to the project. Although the baseline budget might account for risk-related costs (e.g., contingency reserves), its primary purpose is not risk management. Instead, it is a tool for monitoring and controlling costs against the approved budget.

Comparing actual expenditures against planned expenditures (Option B) is the primary purpose of a baseline budget, making it the correct answer. The baseline budget serves as a reference point to measure how closely actual spending aligns with the planned budget over the course of the project.

Assignment 2

What is the purpose of a 'cost baseline' in budgeting?

- A) To estimate the project's income
- B) To provide a reference point for measuring project performance
- C) To allocate human resources
- D) To manage project risks



Explanation Assignment 2

A) To estimate the project's income:

- **Explanation:** A cost baseline is not used to estimate the project's income. It is a detailed plan of the approved budget for the project, against which actual performance is measured. Estimating income is generally done through financial forecasting, not through the cost baseline.

C) To allocate human resources:

- **Explanation:** While the cost baseline may influence resource allocation decisions, its primary purpose is not to allocate human resources. Resource allocation is more directly concerned with ensuring the right people and materials are available for the project. The cost baseline focuses on financial performance, not resource management.

D) To manage project risks:

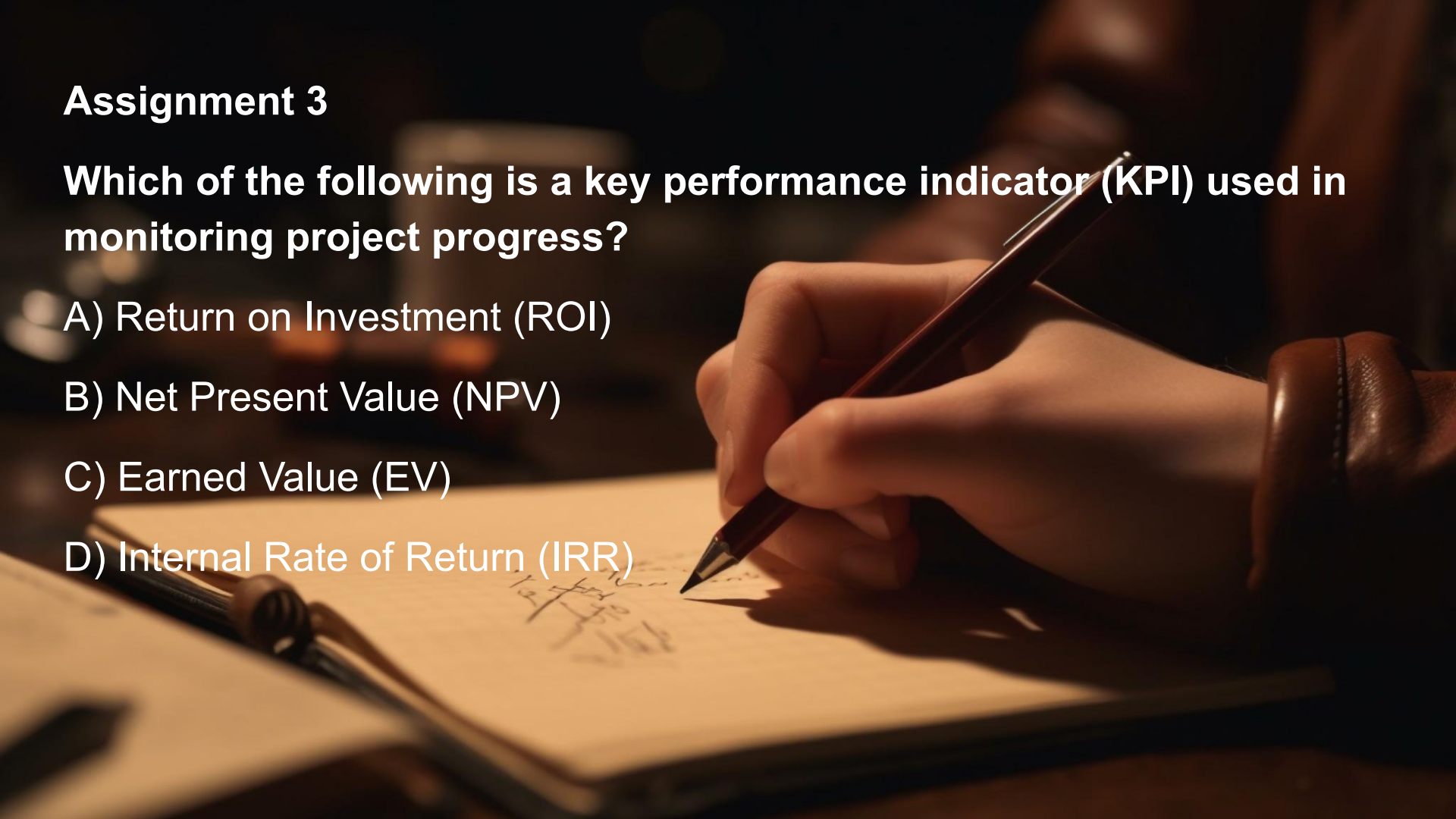
- **Explanation:** Although the cost baseline may include contingency reserves to address risks, its primary purpose is not risk management. Risk management involves identifying, analyzing, and responding to project risks. The cost baseline is mainly used as a financial tool to measure project performance against the planned budget.

Providing a reference point for measuring project performance (Option B) is the purpose of a cost baseline in budgeting, making it the correct answer. The cost baseline allows project managers to compare actual expenditures and progress against the planned budget to determine if the project is on track financially.

Assignment 3

Which of the following is a key performance indicator (KPI) used in monitoring project progress?

- A) Return on Investment (ROI)
- B) Net Present Value (NPV)
- C) Earned Value (EV)
- D) Internal Rate of Return (IRR)



Explanation Assignment 3

A) Return on Investment (ROI):

- **Explanation:** ROI is a financial metric used to evaluate the profitability of an investment or compare the efficiency of different investments. It is not specifically a KPI used for monitoring ongoing project progress. ROI is generally calculated after the project or investment is complete to determine its financial return.

B) Net Present Value (NPV):

- **Explanation:** NPV is a financial metric used to assess the profitability of an investment by calculating the present value of cash inflows and outflows over time. While it's important in financial analysis and project selection, NPV is not typically used as a KPI for monitoring the day-to-day progress of a project.

D) Internal Rate of Return (IRR):

- **Explanation:** IRR is a financial metric used to evaluate the attractiveness of an investment or project by determining the rate of return at which the net present value of cash flows is zero. Similar to ROI and NPV, IRR is not used as a KPI for monitoring ongoing project progress. It is used more in the context of financial evaluation and decision-making.

Earned Value (EV) (Option C) is a key performance indicator (KPI) used in project management to monitor project progress. It measures the value of the work actually performed compared to the planned work and budget, providing insights into whether the project is on track in terms of both schedule and cost. This makes EV the correct answer.

Assignment 4

A 'Gantt Chart' is primarily used for:

- A) Estimating project costs
- B) Monitoring project timelines and progress
- C) Managing project risks
- D) Allocating project resources



Explanation Assignment 4

A) Estimating project costs:

- **Explanation:** A Gantt Chart is not used for estimating project costs. Cost estimation involves forecasting the financial resources required for a project, which is done using tools like cost breakdown structures, cost estimating software, or spreadsheets. A Gantt Chart, however, is a visual tool that displays the project schedule over time.

C) Managing project risks:

- **Explanation:** While managing risks is a crucial aspect of project management, a Gantt Chart is not specifically designed for risk management. Risk management involves identifying, assessing, and mitigating potential risks, usually documented in a risk register or risk matrix. A Gantt Chart is focused on visualizing the project timeline rather than risk management.

D) Allocating project resources:

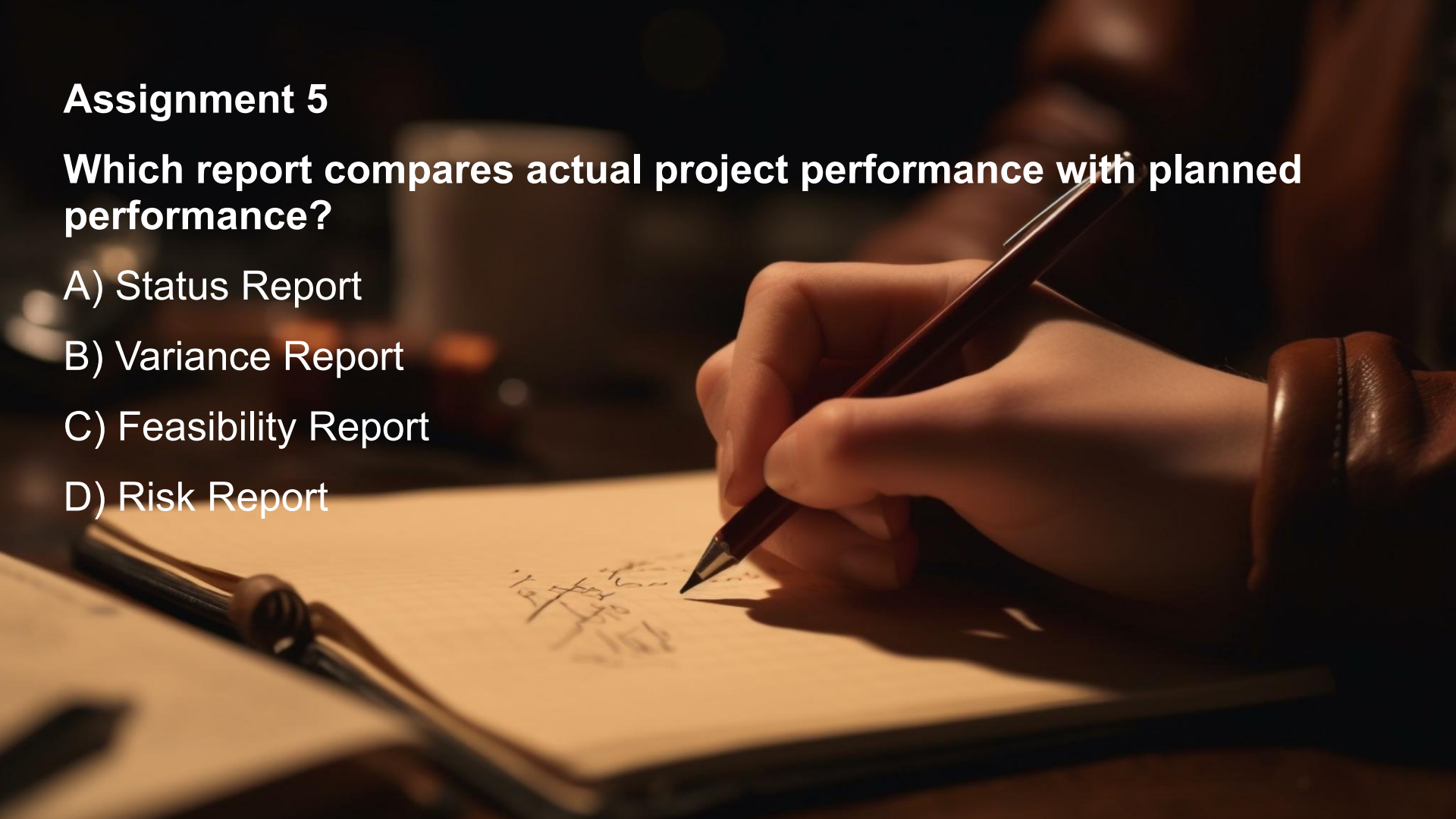
- **Explanation:** Resource allocation involves assigning the necessary resources (people, equipment, materials) to project tasks. While a Gantt Chart may indicate when resources are needed based on the schedule, it is not primarily used for allocating resources. Other tools like resource histograms or resource leveling techniques are better suited for resource allocation.

Monitoring project timelines and progress (Option B) is the primary use of a Gantt Chart, making it the correct answer. A Gantt Chart visually represents the project schedule, showing the start and end dates of tasks, their duration, and how they overlap, making it an essential tool for tracking progress and ensuring the project stays on schedule.

Assignment 5

Which report compares actual project performance with planned performance?

- A) Status Report
- B) Variance Report
- C) Feasibility Report
- D) Risk Report



Explanation Assignment 5

A) Status Report:

- **Explanation:** A Status Report provides a snapshot of the current state of the project, including updates on tasks, milestones, and overall progress. While it gives an overview of where the project stands, it does not specifically focus on comparing actual performance against the planned performance.

C) Feasibility Report:

- **Explanation:** A Feasibility Report is created during the project initiation phase to evaluate the viability of a project, considering factors like financials, technical aspects, and market conditions. It is not used for monitoring project performance once the project is underway and does not compare actual versus planned performance.

D) Risk Report:

- **Explanation:** A Risk Report identifies potential risks that could impact the project and provides an analysis of these risks. It focuses on the identification, assessment, and mitigation of risks, but it does not compare actual project performance with planned performance.

Variance Report (Option B) is the correct answer because it is specifically designed to compare actual project performance with the planned performance. It highlights any deviations from the plan, such as differences in cost, schedule, or scope, allowing project managers to take corrective actions if necessary.

Learning Objective 3

Financial Forecasting Techniques

Skill Sets to acquire:

Forecasting, Scenario Planning,
Cash Flow Management



Financial Forecasting Techniques

Top-down - Used as a starting point more by larger, established businesses or early-stage companies with less data

1. Broader market size
2. Industry trends
3. Market share goals
4. Company specific revenue & goals

Bottom-up Detailed customer level, product and market level forecast, time and labour intensive involving various departments

1. Likely new customers which might sign in or new geography which might get opened
2. Likely expansion of product offerings to existing customers
3. Product level and business unit level aggregation to arrive at business forecast

Financial Forecasting Techniques

- Identify the sources of revenue or cost specific to your program. For instance, for revenue consider software sales, subscription fees, consulting services, or licensing
- Use historical data or industry benchmarks to predict future growth
 - **First-Principles Approach:** Model revenues with high detail and precision with industry benchmarks. For example, forecast expansion rates, income per square meter (for retail), or market size (for telecommunications) or regression analysis
 - **Quick and Dirty Approach:** Predict growth based on historical figures and trends
 - Simple but less accurate
- SG&A costs are often expressed as % of revenues - may be fixed in the short term, they become more variable over longer periods

Cash flow financial forecasting is more accurate over a short term

Scenario Analysis and Sensitivity Analysis

Financial scenarios (best case, base case and worst case)

Futuristic projections can be dependent on client choosing project as per political situation, technological developments

- What are the different possible outcomes?
- How would key input variables change for different outcomes?

Sensitivity Analysis

Controlling input variables and various combinations help us optimize resources & reach goals

- Identify key variables
- Assess the impact on key variables due to different scenarios

What is it not ...

Creating forecasts with so many variables that they become difficult to understand or explain

Long-Term Capital Management (LTCM), a hedge fund, used highly complex mathematical models for its forecasts. The models' complexity obscured their limitations, contributing to the fund's spectacular collapse in 1998.

Failing to analyze a range of realistic middle-ground scenarios

Lehman Brothers' scenario analysis before the 2008 financial crisis failed to adequately consider moderate downturns in the housing market. This contributed to the bank's overexposure to subprime mortgages and eventual bankruptcy.

Not considering a wide enough range of potential changes in key variables

Many oil companies' sensitivity analyses in the mid-2010s didn't consider oil prices dropping below \$40 per barrel. When prices did fall this low in 2015-2016, companies like Chesapeake Energy were caught unprepared, leading to financial distress.

Failing to identify and analyze all relevant variables that could impact financial performance

Volkswagen's emissions scandal in 2015 revealed that the company's risk analyses had not adequately considered the financial impact of regulatory non-compliance. This oversight led to billions in fines and a major hit to the company's market value

Examples of non-standard practices

Confirmation bias:

Focusing on data and scenarios that confirm existing beliefs or desired outcomes. Theranos' financial projections and scenario analyses were heavily biased towards confirming the viability of its blood-testing technology, ignoring or downplaying contrary evidence. This led to inflated valuations and eventual collapse when the truth came to light.

Lack of transparency:

Not clearly communicating the assumptions and limitations of forecasts and analyses. Example: Bernie Madoff's investment firm provided consistent returns based on fraudulent forecasts. The lack of transparency about how these returns were achieved allowed the Ponzi scheme to continue for years.

Failure to update models:

Using outdated forecasting models or scenarios that don't reflect current market conditions. Example: Many traditional retailers like Sears failed to update their forecasting models to account for the rapid growth of e-commerce, leading to overly optimistic projections about store performance.

Misuse of probabilistic forecasts:

Presenting ranges or probabilities without proper context or explanation. Example: BP's communications about the Deepwater Horizon oil spill in 2010 initially underestimated the potential volume of the leak, partly due to misinterpretation of probabilistic models. This led to criticism about the company's transparency and preparedness.

Excel for financial forecasting

Formatting

1. Use consistent formatting for numbers, dates, and text.
2. Use cell formatting (e.g., background colors) to distinguish between input cells and calculated cells.
3. Format financial data properly using currency and percentage formats.

Build in Flexibility

- Create a key assumption sheet, where all assumptions are linked to in various tabs
- Processing sheet and output section to be kept separate from input sheet
- Use data tables or scenario manager to analyze different scenarios (e.g., best, worst case)

Documentation

- A column to list down sources of data and documentation of why a number was chosen
- Maintain version history - Date in file name

Excel formulas & functions for financial forecasting

Preparing data for use in excel

- Arrange data in tables, use “clean” and “trim” function to clean data
- Use relative & absolute cell references (A1 vs. \$A\$1) to ensure formulas update correctly when copied
- Use “iferror” function to convert character into number

Basic function and Formula

- Basic functions: Sum, average, min and max
- Logical Functions: IF, AND, OR to build conditional logic into your models
- Financial Functions: NPV, IRR, PMT for more complex financial

Data analysis functions

- Lookup and Reference: vlookup, hlookup, index and match
- Date and time Functions: EDATE, EOMONTH, YEAR, MONTH, DATE
- Growth functions: forecast.linear, trend, growth

Common follow-up questions

1. "What are the main financial forecasting techniques, and how do they differ?"
2. "How can scenario analysis be used in financial forecasting to plan for uncertainties?"
3. "What is the role of historical data in developing accurate financial forecasts?"
4. "Can you provide an example of how financial forecasting can influence strategic business decisions?"



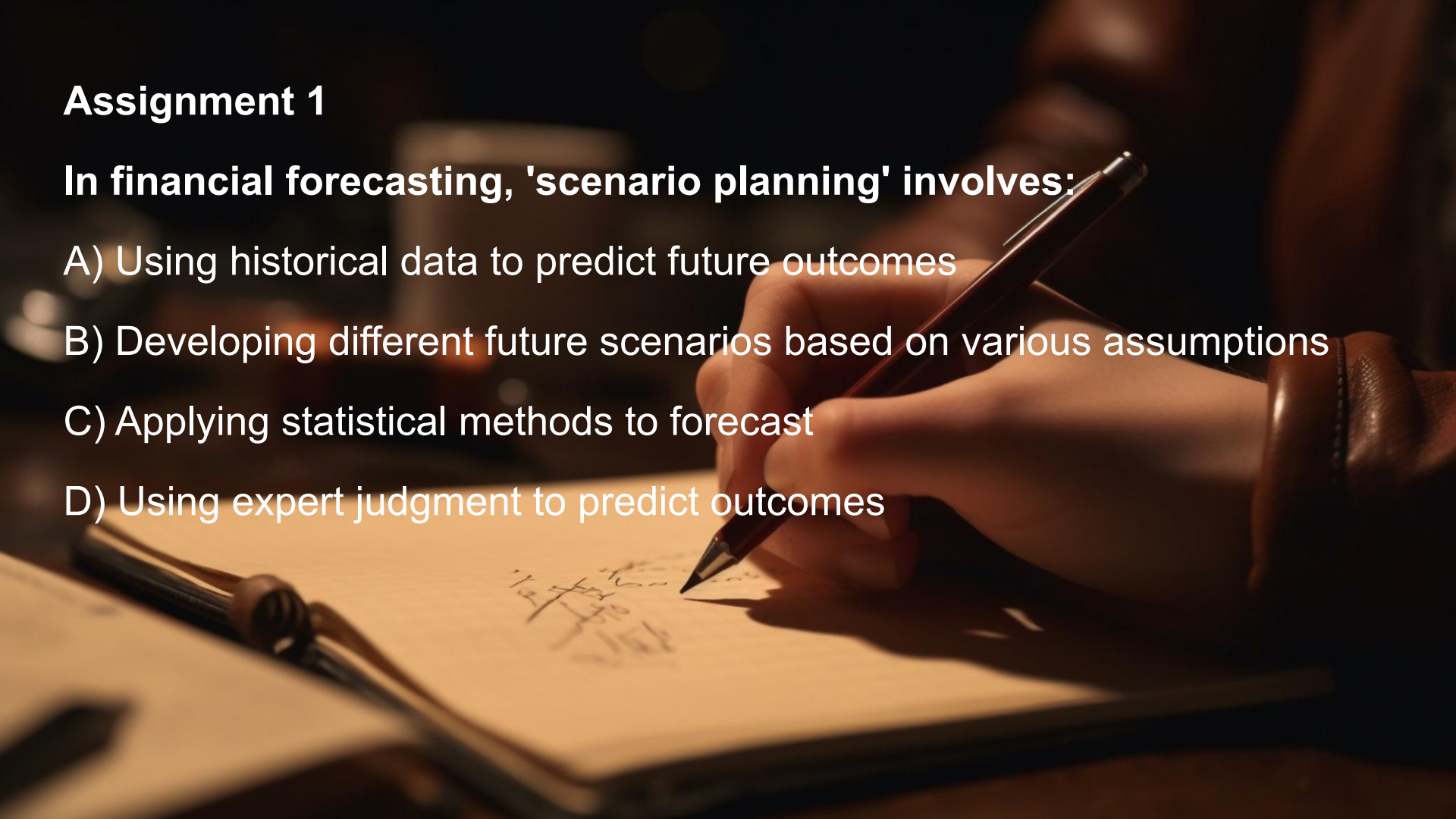
Assessment



Assignment 1

In financial forecasting, 'scenario planning' involves:

- A) Using historical data to predict future outcomes
- B) Developing different future scenarios based on various assumptions
- C) Applying statistical methods to forecast
- D) Using expert judgment to predict outcomes



Explanation Assignment 1

A) Using historical data to predict future outcomes:

- **Explanation:** While using historical data is a common practice in financial forecasting, it is not what scenario planning specifically involves. Scenario planning focuses on creating and analyzing multiple possible future scenarios rather than relying solely on historical data. This method considers various uncertainties and how they could impact future outcomes.

C) Applying statistical methods to forecast:

- **Explanation:** Statistical methods are indeed used in financial forecasting to predict future outcomes based on data trends and patterns. However, scenario planning is different as it does not rely solely on statistical methods but rather on creating and exploring various hypothetical future scenarios based on different assumptions.

D) Using expert judgment to predict outcomes:

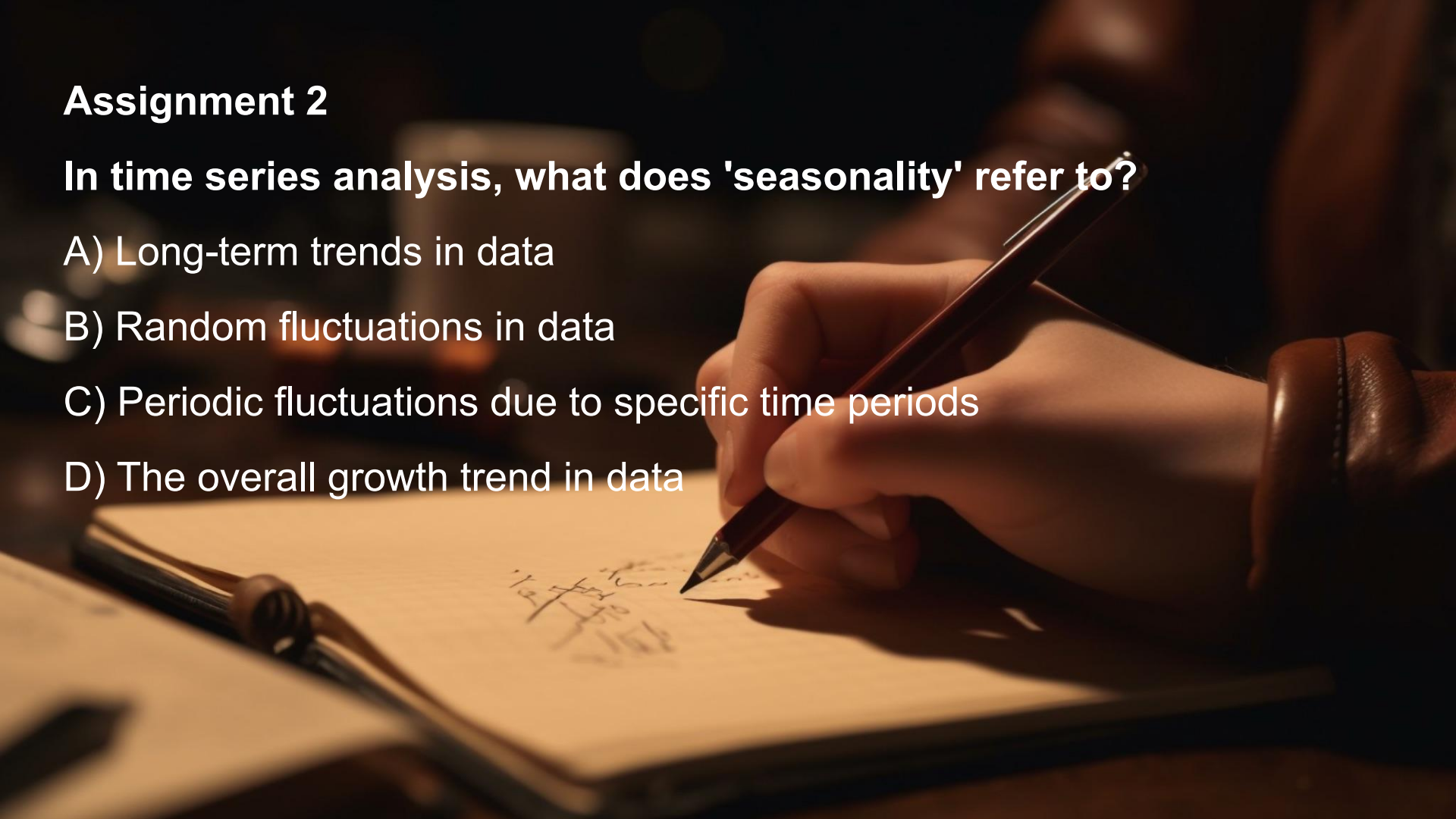
- **Explanation:** Expert judgment is often used in financial forecasting, particularly when data is scarce or when forecasting complex or uncertain outcomes. However, scenario planning is more structured and involves the systematic development of different scenarios, not just the application of expert opinion.

Developing different future scenarios based on various assumptions (Option B) is the essence of scenario planning. It involves thinking through different possible futures based on varying assumptions about key drivers of change, which helps organizations prepare for a range of potential outcomes. This makes Option B the correct answer.

Assignment 2

In time series analysis, what does 'seasonality' refer to?

- A) Long-term trends in data
- B) Random fluctuations in data
- C) Periodic fluctuations due to specific time periods
- D) The overall growth trend in data



Explanation Assignment 2

A) Long-term trends in data:

- **Explanation:** Long-term trends refer to the general direction in which data points are moving over an extended period. This could be upward, downward, or stable, but it does not refer to seasonal patterns. Seasonality is specifically about periodic fluctuations, not long-term trends.

B) Random fluctuations in data:

- **Explanation:** Random fluctuations, also known as noise, are unpredictable variations in data that do not follow a pattern. These fluctuations are not related to seasonality, which involves regular, predictable changes that occur at specific intervals.

D) The overall growth trend in data:

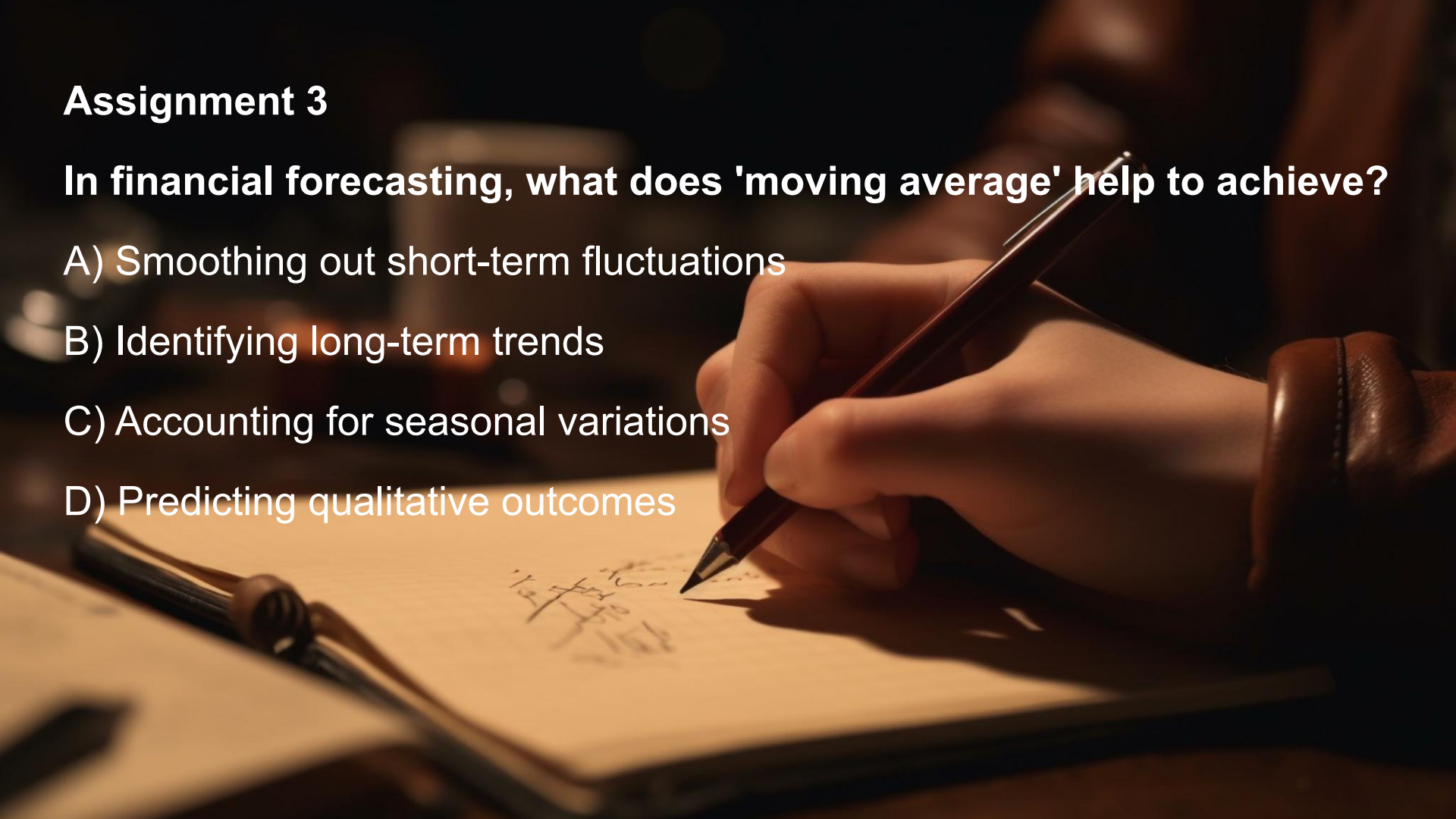
- **Explanation:** The overall growth trend represents the general increase in data values over time, but it is different from seasonality. Seasonality refers to recurring patterns or cycles in the data that are tied to specific periods, such as quarters, months, or seasons, rather than a continuous growth trend.

Seasonality (Option C) refers to **periodic fluctuations due to specific time periods**, such as the increased retail sales during the holiday season or higher electricity usage during summer. These patterns repeat at regular intervals and are predictable, making Option C the correct answer.

Assignment 3

In financial forecasting, what does 'moving average' help to achieve?

- A) Smoothing out short-term fluctuations
- B) Identifying long-term trends
- C) Accounting for seasonal variations
- D) Predicting qualitative outcomes



Explanation Assignment 3

B) Identifying long-term trends:

- **Explanation:** While moving averages can help to reveal long-term trends by smoothing out data, the primary purpose of a moving average is to reduce short-term fluctuations. It does this by averaging data points over a specified period, thereby making it easier to see the underlying trend. However, simply identifying long-term trends is not the main function of moving averages.

C) Accounting for seasonal variations:

- **Explanation:** Moving averages do not specifically account for seasonal variations. They are used to smooth data and reduce noise, but they don't directly adjust for seasonality. To address seasonality, other techniques like seasonal decomposition would be more appropriate.

D) Predicting qualitative outcomes:

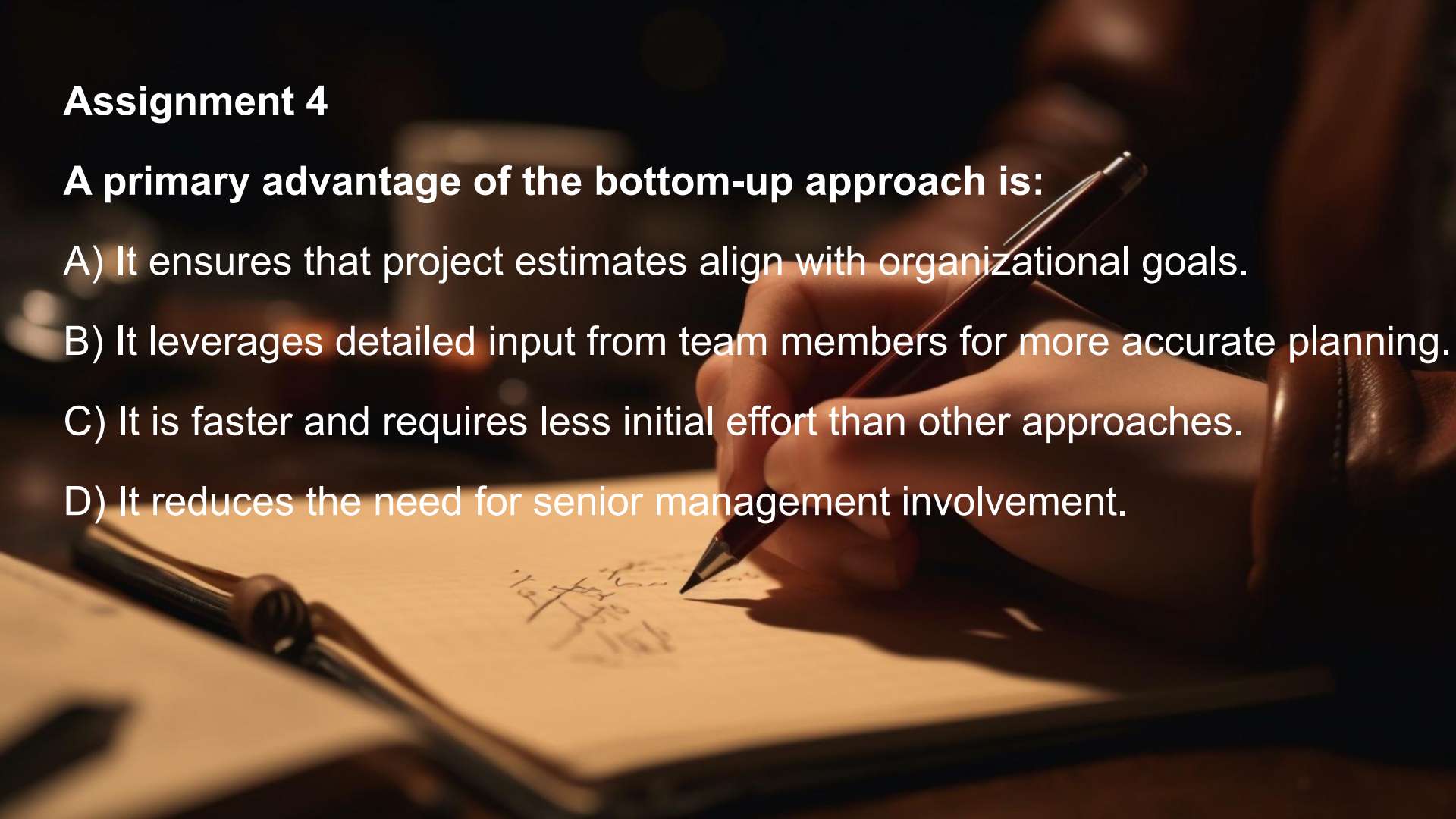
- **Explanation:** Moving averages are a quantitative tool used to analyze numerical data over time. They are not used for predicting qualitative outcomes, which involve non-numerical aspects such as opinions, feelings, or other subjective factors.

Smoothing out short-term fluctuations (Option A) is the primary purpose of a moving average. It helps to make the data more interpretable by reducing the impact of random, short-term variations, allowing the underlying trend to be more easily observed. This makes Option A the correct answer.

Assignment 4

A primary advantage of the bottom-up approach is:

- A) It ensures that project estimates align with organizational goals.
- B) It leverages detailed input from team members for more accurate planning.
- C) It is faster and requires less initial effort than other approaches.
- D) It reduces the need for senior management involvement.



Explanation Assignment 4

A) It ensures that project estimates align with organizational goals:

- **Explanation:** While aligning project estimates with organizational goals is important, this alignment is not specifically a primary advantage of the bottom-up approach. The bottom-up approach focuses more on gathering detailed information from the project team, which may or may not directly align with higher-level organizational goals unless carefully managed.

C) It is faster and requires less initial effort than other approaches:

- **Explanation:** The bottom-up approach is actually more time-consuming and effort-intensive compared to other approaches, like the top-down approach. It involves detailed analysis and input from various team members for each part of the project, which generally requires more time and resources upfront.

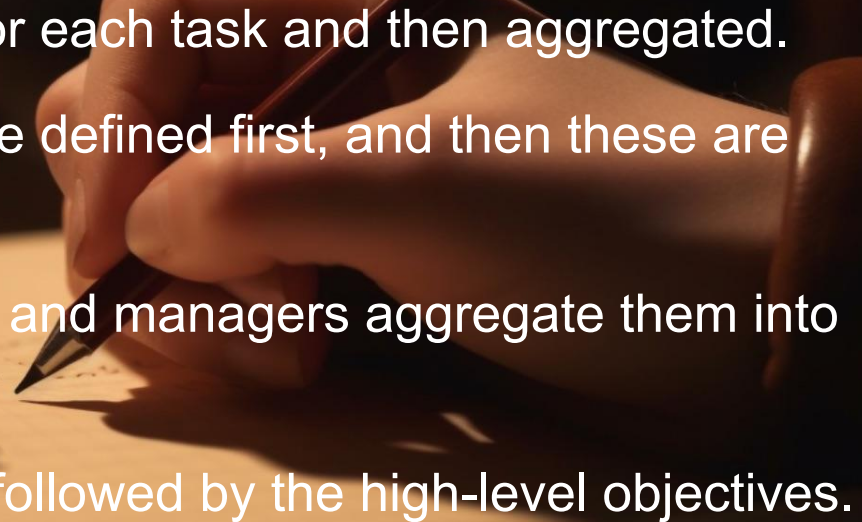
D) It reduces the need for senior management involvement:

- **Explanation:** The bottom-up approach does not necessarily reduce the need for senior management involvement. While it relies on input from team members, senior management still needs to be involved in reviewing and approving the detailed estimates and plans that result from this approach.

Leveraging detailed input from team members for more accurate planning (Option B) is a primary advantage of the bottom-up approach. This method allows for a more granular and accurate estimation process because it involves those who are closest to the work and therefore most familiar with what is required. This makes Option B the correct answer.

Assignment 5

Which of the following best describes the top-down approach in project management?

- A) Detailed estimates are made for each task and then aggregated.
 - B) High-level project objectives are defined first, and then these are broken down into tasks.
 - C) Team members suggest tasks, and managers aggregate them into project objectives.
 - D) Project tasks are defined first, followed by the high-level objectives.
- 
- A close-up, warm-toned photograph of a person's hand holding a dark pen, writing on a notepad. The notepad has some faint, handwritten notes and a small diagram. The background is blurred, showing what appears to be a desk with other papers and a lamp.

Explanation Assignment 5

A) Detailed estimates are made for each task and then aggregated:

- **Explanation:** This describes the bottom-up approach, where individual tasks are estimated in detail and then aggregated to form the total project estimate. The top-down approach works in the opposite direction, starting with high-level objectives.

C) Team members suggest tasks, and managers aggregate them into project objectives:

- **Explanation:** This is not how the top-down approach works. In top-down project management, high-level objectives are defined by managers or senior leadership first, and then these objectives are broken down into specific tasks. The process starts from the top and cascades down to the details.

D) Project tasks are defined first, followed by the high-level objectives:

- **Explanation:** This is not an accurate description of the top-down approach. In top-down management, the high-level objectives are set before any specific tasks are defined. The approach is hierarchical, with the broad goals established first, guiding the development of detailed tasks later.

High-level project objectives are defined first, and then these are broken down into tasks (Option B) is the best description of the top-down approach in project management. This approach starts with broad goals or objectives set by senior management, which are then decomposed into specific tasks and activities to achieve those objectives. This makes Option B the correct answer.

Case Study




Case Study: Infosys financial indicators for share price

Infosys drivers of valuation <https://drive.google.com/file/d/1VNfLo657TdpuOPQ0mxM3BFfCyd6osGER/view?usp=sharing>

Perform basis comparison of Infosys wrt other Indian IT firms (60 minutes)

- Analyse shareholding pattern of a listed company and study its effect on major decisions
- Comparison of Infosys wrt other big IT firms in India on financial parameters
- Free Cash Flow trend for last 5 years
- Sensitivity analysis of Infosys share price wrt financial metrics
- List down factors which affect share price of company

A background image showing four people (three men and one woman) sitting around a light-colored wooden table. They are all looking down at documents or laptops, appearing to be in a collaborative work session. The table has various items on it, including a white mug, a bowl of snacks, and some papers. The people are dressed in casual business attire. The overall scene is dimly lit, with the focus on the people and their work.

Group simulation

Budgeting & Resource allocation

Participants work in groups to create financial projection in spreadsheet

- Analyze market reports & industry trends to develop a high-level forecast for new product
- Create detailed forecast for an upcoming product using customer data & historical figures
- Create multiple scenarios & perform sensitivity analysis to identify critical variables

Simulation exercise: [Session 4 Group Exercise Financial model 3 statements.xlsx - Google Sheets](#)

Interactive Exercise



Discussion

Financial decision making in uncertain times



Recap and Key Takeaways



Assignment questions

- Develop an operating budget for a project considering various cost elements and revenue projections
- Evaluate the feasibility of an investment project using capital budgeting techniques such as NPV and IRR
- Apply the Earned Value Method to monitor the progress of a project and identify any deviations from the planned budget



Giveaways -Tools, datasets & frameworks

1. **Resource Planning Template:**

https://docs.google.com/spreadsheets/d/1VxxcVzyg_OoKIGe50YF06mrQQJ6kls3G/edit?gid=1706329945#gid=1706329945

2. **Template for cost estimation of resources:**

https://docs.google.com/spreadsheets/d/150D4AjzaDRcL7wgBTYrwUI6zZC_-MjyF/edit?gid=906418175#gid=906418175

Questions & Further Reading

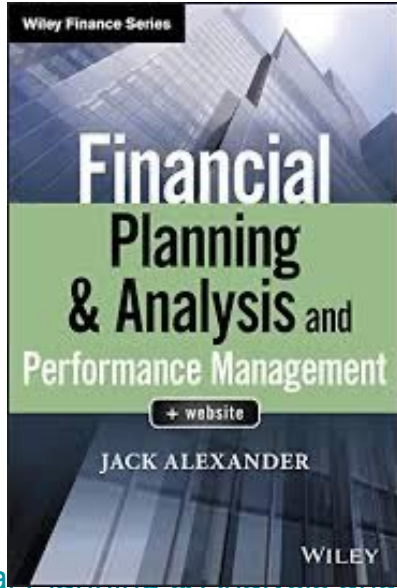


Q&A

Feedback



Additional Resources



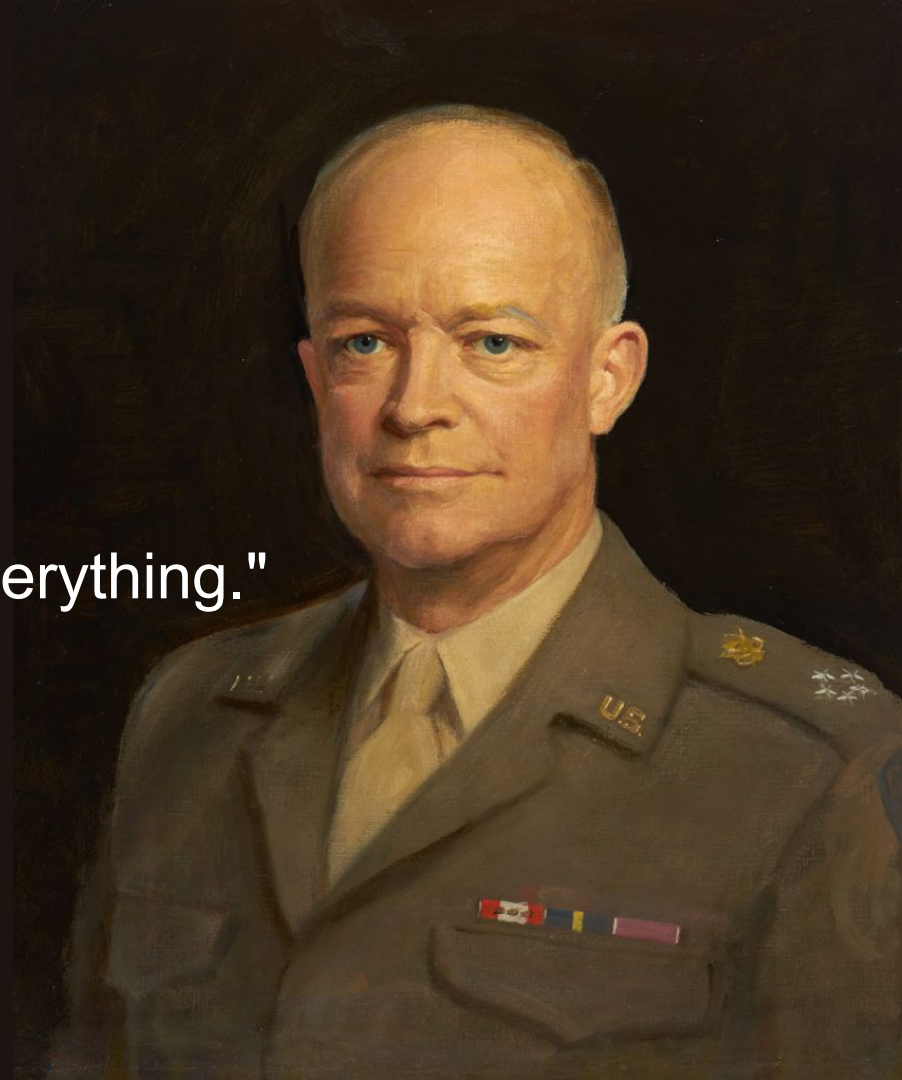
"Financial Planning & Analysis and Performance Management" Jack Alexander

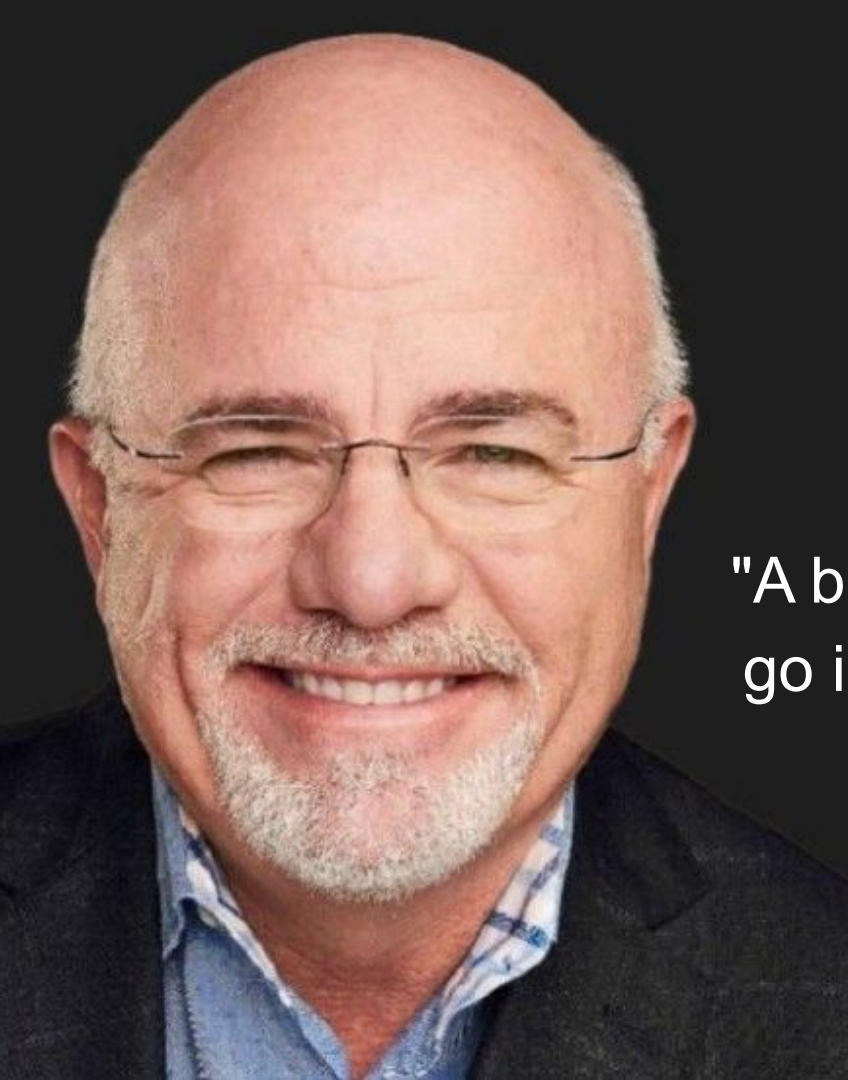


"Budgeting Basics and Beyond" Jae K. Shim and Joel G. Siegel

"Plans are nothing; planning is everything."

Dwight D. Eisenhower





"A budget is telling your money where to go instead of wondering where it went."

Dave Ramsey

ZEN

LEARN