

GAC034 Worked University Budget, Credit Comparison and Startup Plan

GAC Business

Build a university budget with amounts and payment dates

Lin is planning a year at university. These figures are invented practice data, in yuan. They are not a price guide for any country. For a real plan, check dated university and official information.

A budget needs a period, currency, expected costs and realistic funding. Separate money available now from money promised later. Record when each large bill must be paid. Use net income received after deductions. Do not count uncertain work or an unconfirmed scholarship as guaranteed funding.

Lin's monthly living costs are rent 3,500, food 1,800, transport 400 and phone 300.

$$\text{monthly living cost} = \text{rent} + \text{food} + \text{transport} + \text{phone}$$

$$\text{monthly living cost} = 3\,500 + 1\,800 + 400 + 300 = 6\,000 \text{ yuan}$$

$$\text{annual living cost} = \text{monthly living cost} \times \text{months}$$

$$\text{annual living cost} = 6\,000 \times 12 = 72\,000 \text{ yuan}$$

Expected spending	Yuan
Tuition for the year	120,000
Living costs for 12 months	72,000
Insurance	3,000
Visa and travel	6,000
Books and equipment	4,000
Total expected spending	205,000

Lin adds a reserve of 10% of expected spending for this exercise. Ten percent is an assumption, not a universal rule. Risks and available support affect a suitable reserve. The accommodation also requires an 8,000-yuan refundable deposit, returned after this planning year. A **refundable deposit** 可退还押金 ties up cash even when it is not a final expense.

$$\text{reserve} = \text{expected spending} \times \text{reserve rate}$$

$$\text{reserve} = 205\,000 \times 0.10 = 20\,500 \text{ yuan}$$

$$\text{planned funds needed} = \text{spending} + \text{reserve} + \text{deposit}$$

$$\text{planned funds needed} = 205\,000 + 20\,500 + 8\,000 = 233\,500 \text{ yuan}$$

Expected spending remains 205,000. The reserve is not an extra purchase that must occur. The deposit is cash unavailable during this year. Do not subtract its later refund before it arrives. With 200,000 yuan of total confirmed funds for the year, Lin has a 33,500-yuan planning gap. An annual total also needs a monthly payment schedule: enough annual funding can still arrive after tuition is due. If a cost is quoted in another currency, state the conversion assumption and test a less favourable rate.

In a separate monthly example, Lin receives 7,000 net, spends 6,000 and plans to save 500. Setting aside another 300 for unexpected needs leaves 200 unallocated. Saving can be planned, but it must fit the budget. If income falls, revise the plan instead of pretending the gap disappears. Compare actual spending with the budget each month and explain the difference before revising future amounts.

Compare purchases against a defined need

Lin needs a laptop that runs the course software and lasts through classes without charging. Set required features, a maximum total cost and service needs before comparing advertisements. The **total cost of ownership** 总拥有成本 includes necessary extras, maintenance and relevant running costs.

Fictional offer	Device	Needed extras	Total
A	4,800	Software 600; delivery 200	5,600
B	5,200	Required software and delivery included	5,200

Both meet the required software and battery criteria in this exercise. B costs 400 less overall, despite its higher device price. If B did not run the required software, its lower total alone would not make it suitable. Check warranty, support, return terms and seller information when applying the model to a real purchase.

Follow five steps: define the need, set criteria, compare suitable options, decide, then review the result. An opportunity cost is the best alternative use of the money you give up. Buying the laptop may reduce money available for travel or a reserve. It is

not every possible alternative added together. The review asks whether the chosen product meets the need, not only whether the advertisement looked attractive.

Compare credit cost, affordability and contract terms

The **principal** 本金 is the amount borrowed. A **repayment schedule** 还款计划 states when payments are due. Compare the same amount borrowed, the full term, fees and repayment conditions. A lower monthly payment can mean a longer term and a higher total cost.

Two invented offers each provide 6,000 yuan, with these complete stated payments and fees:

Offer	Monthly payment	Months	Separate fee
A	550	12	120
B	290	24	0

The fee is paid separately and is not included again in the monthly payments.

$$\text{total paid} = \text{monthly payment} \times \text{months} + \text{separate fee}$$

$$\text{A total paid} = 550 \times 12 + 120 = 6\,720 \text{ yuan}$$

$$\text{B total paid} = 290 \times 24 + 0 = 6\,960 \text{ yuan}$$

$$\text{credit cost} = \text{total paid} - \text{principal received}$$

$$\text{A credit cost} = 6\,720 - 6\,000 = 720 \text{ yuan}$$

$$\text{B credit cost} = 6\,960 - 6\,000 = 960 \text{ yuan}$$

A costs 240 less, but requires a larger monthly payment. If only 400 remains after essential monthly spending, A does not fit that stated monthly budget. B's smaller payment does not prove it is affordable throughout two years or that borrowing is necessary. Compare postponing the purchase, reducing its cost or changing the funding plan too.

Annual percentage rate 年利率 expresses credit cost on an annual basis under the applicable calculation rules. It is not simply total fees divided by principal for any repayment pattern. Read the disclosed rate together with total repayment, term, included charges and other possible fees. We calculate neither offer's APR here; the timing of all relevant cash flows would be needed.

For an introductory **simple interest** 单利 example, assume 6,000 is borrowed for one year at 8%, without fees. The whole principal stays outstanding until the end. This is a different example from the instalment offers above.

$$\text{interest} = \text{principal} \times \text{annual rate} \times \text{years}$$

$$\text{interest} = 6\,000 \times 0.08 \times 1 = 480 \text{ yuan}$$

Legal aspects include who can enter the agreement, required information, duties and consequences of missed payments. Check the applicable jurisdiction's official rules and the actual agreement in a real case. Identify due dates, changing rates, charges, early repayment terms and whether security or a guarantor is required. A **guarantor** 担保人 can take on obligations under the agreement; it is not just a friendly reference. Do not assume rights, cancellation periods or age rules are identical across countries. The US consumer regulator is a source for US examples, not a substitute for another country's rules.

Distinguish saving from uncertain investment returns

Consider the goal, time before the money is needed, access needs, fees and risk of loss. Money needed for next month's rent has a different purpose from a long-term investment. **Liquidity** 流动性 concerns how readily money or an asset can be accessed or converted for use. An advertised return is not evidence that money can be withdrawn safely whenever needed.

Diversification 分散投资 spreads exposure across investments. It can reduce some risks, but does not prevent all losses. Taking more risk does not guarantee a higher realised return. Unnecessary risk need not be rewarded. Check who provides the product, its terms and official warnings rather than relying on a promised high return.

For a mathematical **compound interest** 复利 example, start with 3,000 and assume a fixed 4% annual growth for two years. Assume interest stays in the account and ignore fees and tax. This is not a current product offer.

$$\text{final amount} = \text{starting amount} \times (1 + \text{annual rate})^{\text{years}}$$

$$\text{final amount} = 3\,000 \times (1.04)^2 = 3\,244.80 \text{ yuan}$$

The second year grows from 3,120, not the original 3,000. If returns are uncertain, the final amount is a scenario rather than a guaranteed balance.

Turn an unmet need into a testable business plan

Bean Cart is an invented student coffee venture. Its proposed customers need drinks near morning classes. A **value proposition** 价值主张 names the intended customer, problem and reason to choose the offer. For Bean Cart: a clearly priced coffee collected near morning classes, with a short planned collection time. The claim about short waits needs testing; it is not true merely because the plan says it.

The business model identifies who pays for each cup, the price, key costs and how delivery works. Research who would actually use the location, how often and what alternatives already exist. Use neutral questions, observations and a small trial with appropriate permission. Interest in a conversation is not an order. A small convenient sample does not represent every student.

The plan should connect market evidence, the offer and four Ps to operations and finance. List the assumptions behind demand, prices, staff costs and supplier reliability. State what evidence would make you change or stop the plan. Include a purpose, market case, marketing plan, operations/personnel, financial forecasts, risks and review measures. Follow the centre's required format for the assessed submission.

Check capacity, staffing and the sales forecast together

Assume one worker can serve a cup every three minutes during two service hours each day. There are 20 working days a month. Ignore interruptions only for this initial capacity calculation.

$$\text{daily capacity} = \frac{\text{service minutes per day}}{\text{minutes per cup}}$$

$$\text{daily capacity} = \frac{120}{3} = 40 \text{ cups}$$

$$\text{monthly capacity} = \text{daily capacity} \times \text{working days}$$

$$\text{monthly capacity} = 40 \times 20 = 800 \text{ cups}$$

A 900-cup forecast exceeds this stated capacity. A 600-cup forecast fits the arithmetic but still needs demand evidence. Cleaning, setup, breaks and equipment faults may reduce actual capacity. Map the process: order, payment, preparation, collection and cleanup. Name the bottleneck and explain what would change if demand doubled.

Personnel planning names who does each task, training, working time, cost and cover for absence. Owner labour also uses time; it is not unlimited because no wage is initially entered. Identify supplier lead times, stock needs and a checked alternative supplier. Location permission, food safety and relevant operating rules must be checked before any real trial. A classroom plan is not permission to trade.

Connect startup funding, profit and monthly cash

For this new case, assume a 15,000-yuan owner investment and no loan. Before trading, cart and equipment cost 12,000. Opening trading cash is therefore 3,000. The initial assets are equipment 12,000 plus cash 3,000, funded by equity 15,000. Buying equipment changes the form of the assets; it is not 12,000 of sales or an immediate full operating expense.

Price is 15 yuan and ingredients cost 5 per cup. Assume monthly fixed operating cost of 3,000, excluding those per-cup ingredients. This explicit classification avoids counting supplies twice. Ignore tax, depreciation and owner wages in this simplified model.

$$\text{contribution per cup} = \text{price} - \text{variable cost per cup}$$

$$\text{contribution per cup} = 15 - 5 = 10 \text{ yuan}$$

$$\text{break-even cups} = \frac{\text{fixed operating cost}}{\text{contribution per cup}}$$

$$\text{break-even cups} = \frac{3\,000}{10} = 300 \text{ cups per month}$$

At 600 cups, revenue is 9,000 and ingredients cost 3,000.

$$\text{operating profit} = \text{quantity} \times \text{contribution per cup} - \text{fixed cost}$$

$$\text{operating profit} = 600 \times 10 - 3\,000 = 3\,000 \text{ yuan}$$

Assume all customers pay immediately, ingredients are bought and used in the same month, and fixed costs are paid monthly. No further equipment, loans or owner withdrawals occur in the following forecast.

Trading month	Cups	Receipts	Payments	Closing cash
1	600	9,000	6,000	6,000
2	300	4,500	4,500	6,000
3	800	12,000	7,000	11,000

$$\text{closing cash} = \text{opening cash} + \text{receipts} - \text{payments}$$

$$\text{month 1 closing cash} = 3\,000 + 9\,000 - 6\,000 = 6\,000 \text{ yuan}$$

Each month's closing cash becomes the next month's opening cash. Do not restart every month at 3,000. Month 2 is at operating break-even. Month 3 uses the initial maximum capacity, leaving no allowance for interruptions. These forecasts are scenarios, not guaranteed sales. Test a lower-demand month and delayed receipts before accepting the plan.

Operating break-even does not mean the original equipment investment has been recovered. If a 3,000-yuan cash surplus repeated each month without other uses, recovering 12,000 would take four months. That simple scenario changes if sales, costs, withdrawals or further investment change. Explain the difference between one-time funding, a period's profit, a cash balance and recovery of the initial outlay.

Practice and explained answers

1. Calculate Lin's expected annual spending and planned funds needed. Why are these different?
2. With confirmed funds of 200,000, calculate the planning gap. What payment-timing issue must also be checked?
3. If monthly living cost rises by 500, calculate annual spending before reserve and deposit.
4. Explain why laptop B is cheaper overall and name a condition that could make it unsuitable.
5. Compare the credit costs of A and B. Which fits a stated monthly surplus of 400, before other uncertainties?
6. Explain why you cannot obtain APR just by calling A's 720-yuan cost a percentage of 6,000.

7. Calculate the simple interest and the compound-growth example, keeping the cases separate.
8. Predict whether Bean Cart can serve 900 cups under the stated capacity assumptions.
9. Calculate contribution, monthly break-even and operating profit at 600 cups.
10. Recalculate month 2 closing cash if cups sold fall to 200, with immediate payment and unchanged fixed cost.
11. Give two reasons why the 600-cup sales forecast needs more evidence even though it fits capacity.
12. Outline a complete business-plan recommendation, its assumptions, two risks and a review decision.

Explained answers

Answer 1. Expected spending is 205,000. Planned funds needed are 233,500 because reserve and deposit need available cash. The reserve may stay unused; the deposit is tied up until after this year.

Answer 2. The planning gap equals required funds minus confirmed funds.

$$\text{planning gap} = \text{required funds} - \text{confirmed funds}$$

$$\text{planning gap} = 233\,500 - 200\,000 = 33\,500 \text{ yuan}$$

Check whether funds arrive before tuition, travel and deposit payments are due.

Answer 3. The annual increase is the monthly increase times twelve.

$$\text{annual spending} = \text{original spending} + 12 \times \text{monthly increase}$$

$$\text{annual spending} = 205\,000 + 12 \times 500 = 211\,000 \text{ yuan}$$

Recalculate the chosen reserve too; the question's figure excludes reserve and deposit.

Answer 4. A totals 5,600 and B totals 5,200, so B saves 400. Required software compatibility still matters.

Answer 5. A costs 720 and B costs 960 beyond the principal. B's payment of 290 fits the stated 400 surplus. A's payment of 550 does not. This does not establish long-term affordability or a need to borrow.

Answer 6. The loans have different durations and repayments reduce the amount outstanding. APR uses annualised timing and applicable charge rules, rather than only one total-cost ratio.

Answer 7. Simple interest is 480 on the stated one-year principal. The separate two-year compound example ends at 3,244.80, with interest retained and no fees or tax.

Answer 8. Daily capacity is 40 and monthly capacity is 800, so 900 exceeds the assumptions. Interruptions may reduce capacity further; a higher forecast needs a justified operational change.

Answer 9. Contribution is 10 per cup, break-even is 300 cups and operating profit at 600 is 3,000. These are operating results under the stated exclusions, not recovery of all startup investment.

Answer 10. Month 2 opens with month 1's closing cash of 6,000. Revenue at 200 cups is 3,000. Ingredients cost 1,000 and fixed costs remain 3,000, so total payments are 4,000.

$$\text{closing cash} = \text{opening cash} + \text{receipts} - \text{payments}$$

$$\text{closing cash} = 6\,000 + 3\,000 - 4\,000 = 5\,000 \text{ yuan}$$

Answer 11. Capacity does not prove customers will buy. Survey interest may not become paid orders. Competitors, location access and timetable changes may also affect actual demand.

Answer 12. Link a checked customer need and marketing offer to feasible staffing, supply and finance. State the sales and cost assumptions; test low demand and worker absence. Review a permitted small trial's actual sales, service time and cash before expanding or revising the plan.