

AI Feature Spec & PRD

1. FEATURE OVERVIEW

1.1 Feature name- Smart Split an AI-powered add-on inside PhonePe's existing group bill-splitting flow.

1.2 One-line description— The user photographs a restaurant or shop bill, the group taps who had what (or types it in plain language), and the AI instantly works out each person's exact share — including a fair, proportional split of GST and service charge — and sends the split requests.

1.3 Where it appears in the flow

It sits at the Expense Entry / Division Matrix step (Phase B) of the current split flow. Instead of typing a total and dividing it by hand, the user now sees a "Scan Bill" option.

1.4 Before experience

Today the group planner manually types the total amount and either splits it equally or enters each person's share by hand. To divide item-by-item or to apportion the 18% GST and service charge fairly, they have to leave the app and use a separate calculator. It is slow, error-prone, and the people receiving the request only see a bare number with no proof of what they are paying for.

1.5 After experience

The planner taps Scan Bill and photographs the receipt. The AI reads every line item, the group assigns items with a tap, and within seconds each member sees their exact share with taxes already distributed. Receivers get an itemized breakdown, so they trust the amount and pay faster.

2. PROBLEM AND GOALS

Goal Type	Description
User Problem	Dividing a bill item-by-item is manual and error-prone; users must open an external calculator for taxes, and receivers don't trust a bare amount.
User Goal	Split the bill exactly and fairly in seconds, without doing any math.
Business Goal	Increase split-flow completion and DAU/MAU, pull users deeper into the PhonePe wallet/bank ecosystem, and win against Splitwise and Paytm's split feature.
Product Goal	Replace manual division with AI-powered itemised splitting, built natively into the existing group-split flow.

3. AI CAPABILITY USED

Optical Character Recognition (OCR): reads the photographed bill and extracts each line item with its quantity and price, plus tax and total lines.

Natural Language Understanding (NLU): parses messy, non-standard bill text and lets users assign items in plain language (e.g., "I had the pizza and one coke"), mapping the words to the right line items and people.

Allocation logic: proportionally distributes GST and service charge across each person based on the value of items they consumed.

Why this is the right capability

Itemized splitting is an understanding problem, not a layout problem. A rules-based UI cannot read an arbitrary restaurant bill or interpret natural language. Only AI — pattern recognition plus language understanding — can turn a messy photo into an accurate, fair, per-person split in seconds. This directly targets the chosen friction (F2: Manual Itemization & Math Bottleneck) and, as a by-product, also solves the proportional-tax (F4) and bill-proof (F3) frictions.

4. INPUT AND OUTPUT

Input Given to AI	AI Processing/Logic	Output Shown to User
Photo of the bill	OCR reads items; if the image is blurry or confidence is low, ask the user to retake. The AI never invents items not on the bill.	Extracted itemized list (item, qty, price)
Item assignment (tap / text / voice)	NLU maps claims to line items; any unassigned item is flagged before continuing.	Per-person itemized subtotal
Tax & service-charge lines	Auto-computed by item value; the sum of all shares must equal the bill total; else the split is blocked.	Per-person proportional tax share
User confirmation	Requests are only sent after the user reviews and confirms; every amount stays editable.	Split requests sent to each member

5. AI WORKFLOW

1. User taps "Scan Bill" at the expense-entry step.
2. User photographs or uploads the restaurant/shop bill.
3. OCR extracts the line items, tax lines and total, and assigns a confidence score to the read.
4. User assigns each item to group members by tapping, or by typing/saying what they had.
5. The AI computes each member's subtotal and distributes GST and service charge proportionally.
6. Guardrail check: the sum of all shares must equal the bill total; unassigned items or low-confidence reads are flagged.

7. The AI shows a clear per-person breakdown for the user to confirm.
8. On confirmation, split requests are sent through the existing PhonePe payment flow.
9. Feedback loop: if a member corrects a misread item, the correction is logged to improve OCR/NLU over time.

6. DATA NEEDS

- Bill image uploaded by the user (primary input).
- Group members and contacts (already in the app).
- Order/transaction context where available (optional, for richer matching).
- Tax rules — GST slabs and service-charge logic — to apportion charges correctly.
- Historical user corrections, used only to improve model accuracy.

Sensitive data handling

Bill photos can contain personal information (e.g., card last-4 digits, names). Images are encrypted in transit and at rest, sensitive fields are masked/redacted before processing, and they are retained only as long as needed for the split. This data is never used for advertising, and handling complies with applicable RBI and data-protection norms.

7. USER STORIES

User 1: As a group planner, I want to scan the bill so the app reads the items automatically, so that I don't have to type each amount.

User 2: As a group planner, I want to assign items to friends by tapping, so that each person pays exactly for what they had.

User 3: As a bill creator, I want taxes and service charges split proportionally, so that the split is fair without manual math.

User 4: As a payment receiver, I want to see the itemized breakdown behind my amount, so that I trust it and pay quickly.

User 5: As a bill creator, I want to correct a misread item, so that the final split is accurate.

8. ACCEPTANCE CRITERIA

Acceptance Criteria for Story 1 (AI Bill Scanning):

- **Happy Path:** Given I am at the expense-entry step, When I tap 'Scan Bill' and upload a clear photo, Then the AI extracts the itemised list and prices within 5 seconds.
- **Edge Case:** Given I upload a blurry or unreadable photo, When the AI fails to extract the items, Then the app prompts me to retake the photo or enter the bill manually.

Acceptance Criteria for Story 3 (Proportional Tax Split):

- Given the bill items are assigned to specific members, When the system computes the final shares, Then GST and service charges are distributed proportionally based on individual item totals, and the per-person totals add up exactly to the overall bill amount.

Acceptance Criteria for Story 5 (Correcting Misreads):

- Given the AI has extracted a wrong price for an item, When I tap to edit the amount and save the correction, Then all individual shares and tax distributions recalculate within 1 second.

9. FUNCTIONAL REQUIREMENTS

1. The feature must offer a "Scan Bill" entry point at the expense-entry step.
2. The system must capture or accept an uploaded bill image.
3. OCR must extract item names, quantities, prices, taxes and the total.
4. The system must let users assign each item to one or more group members.
5. The system must support assignment by tap and by natural-language text input.
6. The AI must distribute taxes and service charges proportionally by item value.
7. The system must validate that the sum of shares equals the bill total before proceeding.
8. The system must flag unassigned items and low-confidence reads, and let the user edit them.
9. The system must show a per-person breakdown for confirmation before sending requests.
10. On confirmation, the system must create split requests through the existing payment flow.
11. The system must let any member view the itemized breakdown behind their amount.
12. The system must capture user corrections and store them securely for model improvement.

10. NON-FUNCTIONAL REQUIREMENTS

Requirement	Target
Performance / Latency	Bill read and itemized in under 5 seconds (P95).
Accuracy	OCR line-item extraction accuracy $\geq 90\%$ on clear images.
Reliability	99.5% uptime for the Smart Split service.
Security	Bill images encrypted in transit and at rest; access restricted.
Privacy	PII masked; data not used for ads; retention limited to the split.
Scalability	Handles 1,000 concurrent bill scans without degradation.
Accessibility	Large tap targets, clear labels, simple language.
Localization	Reads English and major regional-language bills.

11. ASSUMPTIONS, DEPENDENCIES AND RISKS

11.1 Key Assumptions

- Users are willing to photograph their bill.
- Most bills are legible enough for OCR.
- Users prefer fast itemized splitting over manual entry.

11.2 Dependencies

- OCR model / cloud vision API.
- NLU model for item assignment.
- Tax-rule reference (GST / service charge).
- Existing PhonePe group-split and payment-request infrastructure.
- Encrypted image storage.

11.3 Risks

- Poor-quality photos reduce OCR accuracy.
- Misread items could create unfair splits if not caught.
- Bill images may contain sensitive data.
- Higher processing cost at peak hours.
- Unusual bill formats may not parse cleanly.

12. AGILE BACKLOG

Epic	User Story	Priority	Story Points	Notes
Smart Split	Scan bill and auto-extract items	High	8	OCR integration
Smart Split	Assign items to members (tap/text)	High	5	NLU mapping
Smart Split	Proportional tax/charge split	High	5	Allocation logic
Smart Split	Itemized breakdown for receivers	Medium	3	Trust & transparency
Smart Split	Correct misread item + relearn	Medium	3	Feedback loop

(One epic = the Smart Split feature, all within the single group-bill-splitting flow. 1 SP $\approx$ 4 hours; Fibonacci sizing.)