

| Use Case | Input | | | | |
|---|---------------------|----------|-------|------------------|---|
| | name | Type | Count | Operation Method | Validation |
| Easy Level | | | | | |
| 1. checks account balance | Card Number | String | 1 | single value | 16 char, not null, numbers only |
| | Password | int | 1 | single value | |
| | option | char | 1 | | within choices |
| 2. User withdraws money from ATM | Card Number | String | 1 | single value | 16 char, not null, numbers only |
| | Password | String | 1 | single value | 4 char , not null,numbers only |
| | option | char | 1 | single value | Within choices |
| | money | int | 1 | single value | not null,notr more than 500R |
| 3. User logs into email account | email address | String | 1 | single value | email active |
| | Password | String | 1 | single value | match as password exist |
| | Authentication Code | String | 1 | single value | thr code send to the same email address |
| | Option | char | 1 | single value | within choices |
| 4. User uploads a photo to a social media profile | image | int | 1 | single value | within specific frame |
| | Option | char | 1 | single value | within choices |
| 5. User plays a music file using a music player | file name | string | 1 | single value | not null |
| | play | int | 1 | single value | mp3 |
| | Option | char | 1 | single value | within choices |
| | stop | int | 1 | single value | not null |
| 6. User sets a reminder on a smartphone | date and time | DateTime | 1 | single value | not null,correct formate |
| | place name | string | 1 | single value | not null |
| | write action | string | 1 | single value | not null |
| 7. User books a movie ticket online | movie ticket code | string | 1 | single value | not falid |
| | number of tickets | int | 1 | single value | available |
| | price | douple | 1 | single value | not null |
| 8. User Searches for recipe on acooking app | recipe name | string | 1 | single value | not null |
| Medium Level | | | | | |

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|---|---|----------|----|-----------------|----------------------------------|
| 9. User uploads multiple images to generate a slideshow video | images | int | >1 | Multiple values | within specific frame |
| | DurationEachImage | double | 1 | single value | not null , just number |
| | width | double | 1 | single value | not null , just number |
| | hight | double | 1 | single value | not null, just number |
| | select option (for select image button) | char | 1 | single value | within choices |
| | option (for next button) | char | 1 | single value | within choices |
| 10. User places an online food delivery order | order name | string | 1 | single value | not null |
| | number of order | int | 1 | single value | just number |
| | confirm option | char | 1 | single value | within choices |
| | price | double | 1 | single value | not null |
| | option (for next button) | char | 1 | single value | within choice |
| | | | | | |
| | | | | | |
| 11. User schedules an appointment with a doctor through a health portal | appointment date | DateTime | 1 | single value | not null, date formate |
| | patient's name | string | 1 | single value | not null |
| | patient's phone number | string | 1 | single value | not null, 8 digit |
| | doctor name | string | 1 | single value | not null |
| | medical condition | string | 1 | single value | not null |
| 12. User creates an event and invites friends on a calendar app | event title | string | 1 | single value | not null |
| | event date | DateTime | 1 | single value | not null, date formate accepted |
| | event location | string | 1 | single value | not null |
| | event description | string | 1 | single value | not null |
| | friends emails | string | >1 | multivalues | not null, email formate accepted |
| | option | char | 1 | single value | not null |
| | loan type | string | 1 | single value | Not null |

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|--|---------------------------|----------|----|-----------------|---------------------------------------|
| 13. User applies for a loan via online banking | customer full name | string | 1 | single value | Not null |
| | Nationality | string | 1 | single value | Not null, only number |
| | National ID | string | 1 | single value | Not null, only number |
| | Date of Birth | DateTime | 1 | single value | Not null, date and time valid formate |
| | Gender | string | 1 | single value | Not null |
| | Father's name | string | 1 | single value | Not null |
| | Age | int | 1 | single value | Not null, two digit |
| | residency types | string | 1 | single value | Not null |
| | No. of dependents | string | 1 | single value | Not null |
| | educational qualification | string | 1 | single value | Not null |
| | Residence phone | string | 1 | single value | Not null |
| | email ID | string | 1 | single value | Not null, email valid formate |
| 14. User registers and enrolls in a university course | course code | string | 1 | single value | not null |
| | student name | string | 1 | single value | not null |
| | student ID | string | 1 | single value | not null , 8 digit |
| | course price | string | 1 | single value | not null |
| | number of months | int | 1 | single value | not null |
| 15. User customizes and purchases a T-shirt from an online store | size | double | >1 | multible values | not null |
| | color | string | >1 | multible values | not null |
| | design | string | >1 | multible values | not null |
| | quantity | int | >1 | multible values | not null, >0 |
| | User Name | string | 1 | single value | not null |
| | User Email | string | 1 | single value | not null, email eccepted formate |
| | Bank card number | int | 1 | single value | not null, 12 digit, only number |

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|--|---------------------------|--------|----|-----------------|---------------------------------|
| 16. User installs software using a package manager | package command | string | >1 | multi values | Not null, valid command syntax |
| | | | | | |
| | | | | | |
| 17. User reports a bug on a project management platform | bug title | string | 1 | single value | not null |
| | Priority | string | 1 | single value | not null, within option |
| | bug type | string | 1 | single value | not null |
| | bug description | string | 1 | single value | not null |
| Advanced Level (18–25): Involves | | | | | |
| 18. User uploads a resume and receives job recommendations | resume file | string | 1 | single value | not null , pdf except extention |
| | | | | | |
| | | | | | |
| 19. User submits tax forms online and gets real-time calculations | form | string | >1 | Multiple values | Not null |
| | tax value | | | | |
| | | | | | |
| 20. User uses a smart thermostat to schedule home temperature | temperature sensor reader | double | 1 | single value | not null, validFormat |
| | | | | | |
| | | | | | |
| 21. User trains a custom AI model on uploaded data | data | string | >1 | Multiple values | not null |
| | | | | | |
| 22. User tracks fitness data and gets personalized workout suggestions | fitness type | string | 1 | single value | not null, within selection |
| | country | string | 1 | single value | not null, within selection |
| | Age | int | 1 | single value | not null, just int value |
| | job type | string | 1 | single value | not null |
| 23. User reserves a hotel room, flights, and | hotel name | string | 1 | single value | not null within choice |
| | to city | string | 1 | single value | not null |
| | car type | string | 1 | single value | not null |
| | | | | | |
| | | | | | |

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|---|--------------------------|----------|---|--------------|-------------------------------|
| car rental in one session | | | | | |
| | | | | | |
| | | | | | |
| 24. User uses a banking app to transfer funds with currency conversion | amount | string | 1 | single value | Not null |
| | from country | string | 1 | single value | Not null, within choice |
| | to country | string | 1 | single value | Not null, within choice |
| 25. User completes a full patient intake process online before a hospital visit | patient name | string | 1 | single value | Not null |
| | visit id | string | 1 | single value | Not null, 4 digit |
| | sick state | string | 1 | single value | Not null |
| | city | string | 1 | single value | Not null, within choices |
| | phone number | string | 1 | single value | Not null, 8 digit |
| | patient email | string | 1 | single value | Not null, email formate valid |
| | date/ time | DateTime | 1 | single value | Not null |
| | patient visit date/ time | DateTime | 1 | single value | Not null |

| | | Output | | Process | Task (function) | |
|---|-----------------------------|--------|-------|-------------------------|------------------------------------|--|
| Conversion | Name | Type | Count | Single / multiple tasks | Name | Input |
| Level (1–8): Basic, straightforward use cases | | | | | | |
| No | amount | double | 1 | multiple | checkCardValidity | Card Number and password |
| | | | | | CheckBalance | Card Number |
| | | | | | | |
| No | money | double | 1 | multiple | checkCardValidity | Card Number and password |
| No | | | | | CheckBalance | Card Number |
| | | | | | money | Card Number,password |
| yes | | | | | The remaining money | |
| no | log to email account | string | 1 | muple | checkEmailAddress | email address |
| no | | | | | check Password | Password |
| no | | | | | login | correct (email address+password) |
| no | | | | | | |
| yes | new image | int | 1 | multiple | select image | option |
| no | | | | | add image | image |
| no | play music | int | 1 | multiple | seclct file name | file name |
| no | | | | | choise music | musics |
| no | | | | | button | - \ + \ < \ > |
| no | | | | | stop music | option |
| no | successful reminder | string | 1 | multiple | set reminder | date,time,place and action |
| no | | | | | | |
| no | | | | | | |
| no | successful Booking a ticket | string | 1 | multiple | set ticket | movie ticket code,numbers of tickets and price |
| no | | | | | Send a booking confirmation email. | email,ticketsDetails |
| no | | | | | | |
| no | recipe | string | 1 | multiple | recipe name | search name |
| Level (9–17): Multi-step interactions | | | | | | |

| | | | | | | |
|----|--------------------------------|--------|----------------|----------------------------|----------------------------------|--|
| No | video | int | Multi value | multiple | select images | select option |
| No | | | | | | |
| No | | | | | Prepare image | image, width, hight |
| No | | | | | | |
| No | | | | | slidesShow Video | images + DurationEachImage |
| No | | | | | | |
| No | withdraws money amount | double | 1 | Multiple | search order | order name |
| No | | | | | add order to list | order name+ number of order |
| No | Remaining Balance amount | double | 1 | | confirm order | confirm option |
| No | | | | | OrderList | order name+ price + number of order |
| No | | | | | withdraws payment | price + number of order |
| | order detail | string | >1 | | | |
| | | | | | | |
| No | appointment detail | string | 1 | | Multible | check doctor name exist |
| No | | | | create appointment code | | medical condition + doctor name + date |
| No | | | | confirm appointment | | appointment code |
| No | | | | appointment cost | | appointment code + price |
| No | | | | appoinment detail | | appointment code + appoinment total cose |
| No | create event | string | 1 | multiple | create event | event title + event date + event location + event description |
| No | send event email to invites | bool | 1 | | show event detail | event code |
| No | | | | | send email to invites friends | event code +friends email |
| No | | | | | | |
| No | | | | | | |
| No | | | | | | |
| NO | | | | | | apply loan |

| | | | | | | |
|----|-----------------------|--------|---|----------|--------------------------|---|
| NO | loan detail | string | 1 | multible | customer information | customer full name + Nationality + National ID + Date of Birth + Gender + Father's name + Age + residency types + No. of dependents + educational qualification + Residence phone + office phone + email ID |
| NO | | | | | employer address details | employer name employer ID |
| NO | | | | | Loan detail | National ID + loan type |
| NO | | | | | | |
| NO | | | | | | |
| NO | | | | | | |
| NO | | | | | | |
| NO | | | | | | |
| NO | | | | | | |
| NO | | | | | | |
| NO | | | | | | |
| NO | | | | | | |
| NO | | | | | | |
| NO | | | | | | |
| No | successfully register | bool | 1 | multible | check course code exist | course code |
| No | | | | | register on course | student name + student ID |
| No | | | | | total course price | months + price |
| No | | | | | confirm registration | total course price + course code |
| No | | | | | | |
| No | cart order detail | string | 1 | Multiple | Select T-shirt | size + color + design+ quantity |
| No | | | | | Add T-shirt to cart | detail T-shirt |
| No | | | | | CheckOut | user-Name + user Email + Bank card number |
| No | | | | | confirmation order | user-Name + User Email +cart detail |
| No | | | | | send notification | UserEmail + cart detail |
| No | | | | | | |
| No | | | | | | |

| | | | | | | |
|--|------------------------------|--------|----|------------------|----------------------------------|---------------------------------------|
| No | Downloaded package | string | >1 | Multiple | check package available | package command |
| | installation progress | int | >1 | | download package | package command |
| | | | | | install software | package |
| No | Bug report submission status | string | 1 | Multible | submit_bug_report | bug type+ bug_description + bug title |
| no | Bug ID | string | 1 | | generate_bug_id | submession succesfully flag |
| No | Notification sent | string | 1 | | notify_team | bug id |
| No | | | | | | |
| ve data processing, conditional logic, or multiple systems | | | | | | |
| No | list of jobs | string | >1 | Multiple | submit_resume | resume file |
| | | | | | resume analysis | resume file |
| | | | | | job recomandation | key_words |
| yes | update form | string | 1 | Multiple | readform | form |
| | | | | | tax calculation | price* tax value |
| | | | | | writeform | total price + form |
| No | current temp | double | 1 | Multiple | thermostat Communication | current temp + status |
| | current state | string | 1 | | thermostat Handling | current temp + status |
| | next change | double | 1 | | Status Feedback to User | Current state from thermostat |
| yes | AI model | string | 1 | Multiple | Preprocessing data | data |
| | | | | | training_AI | cleaning data |
| No | customer type | string | 1 | Multiple | TrackInformation | fitness type, country, age, job type |
| No | | | | | personalized workout suggestions | string |
| No | | | | | | |
| No | reseves form | string | 1 | | Multiple | availabe rooms |
| | | | | reserves room | | room id , to city |
| | | | | available flight | | to city |
| | | | | reserves flight | | flight id |
| | | | | available car | | to city + hotel name + car type |

| | | | | | | |
|-----|----------------------------|--------|---|----------|------------------------------|---|
| | | | | | reserves car | car id |
| | | | | | confirm reserves | room id , flight id , car id |
| | | | | | display reserves detail | confirm flag |
| yes | conversion amount | double | 1 | Multiple | difference amount | from country, to country |
| No | | | | | conversion amount | amount , difference amount |
| No | | | | | | |
| No | patient visit information | file | 1 | Multiple | create patient visit id | patient name + visit id + sick state + city + phone number + patient visit date/ time |
| No | | | | | checkavailablepatients visit | date/time |
| No | send notification in email | string | 1 | | patient visit information | patient visit id |
| No | | | | | notification send | patient visit information + email |
| No | | | | | | |
| No | | | | | | |
| No | | | | | | |
| No | | | | | | |

| Output Name | Outputtype |
|-----------------|------------|
| | |
| ValidFlag | bool |
| amount | double |
| Valid Flag | bool |
| amount | double |
| amount of money | double |
| remaining money | double |
| Valid Flag | bool |
| Valid Flag | bool |
| Valid Flag | bool |
| Valid Flag | bool |
| Valid Flag | bool |
| Valid Flag | bool |
| music List | string |
| play music | int |
| button flag | bool |
| stop flag | bool |
| Valid Flag | bool |
| | string |
| | string |
| detail recipe | string |



| | |
|----------------------------------|--------|
| one character | char |
| image | int |
| video | int |
| order detail | string |
| order list | string |
| validFlag | bool |
| detail order | string |
| money amount | double |
| | |
| | |
| detail doctor information | string |
| appointment code | string |
| ValidFlag | bool |
| appointment total cost | double |
| appointment detail informatio | string |
| event code | string |
| event detail | string |
| SendFlag | bool |
| | |
| | |
| | |
| ValidFlag | bool |

| | |
|-----------------------------|--------|
| detail customer information | string |
| employer information | string |
| detail loan data | string |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| CheckFlag | bool |
| conformflag | bool |
| total course price | double |
| successfull registration | bool |
| | |
| detail T-shirt | string |
| Add flag | bool |
| cart detail | string |
| ConfirmFlag | bool |
| SendFlag | bool |
| | |
| | |

| | |
|--|--------------------|
| validFlage | bool |
| package | string |
| software | string |
| submition successfully | bool |
| bug id | string |
| notefication send | string |
| | |
| | |
| submission successfully | bool |
| key words | string |
| job list | string |
| price | double |
| total price | double |
| update form | string |
| Current state from thermostat | double |
| temp change, update status | double |
| Display of current temp, next change, status | double , string |
| cleaning data | string |
| AI model | string |
| customer type | string |
| fitnesslist | string |
| room id | string |
| reverse flag | bool |
| flight id | string |
| reverse flag | bool |
| car id | string |

| | |
|-------------------------------|--------|
| reverse flag | bool |
| confirm flag | bool |
| reserves form | string |
| difference amount | double |
| final amount | double |
| | |
| patient visit id | string |
| patient visit list | string |
| patient visit information | string |
| send notification in email | sting |
| | |
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| | |



