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# DS-OCR-Project API Documentation

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## Overview

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**Title:** Hello World API

**Version:** 1.0.0

**Base URL:** <http://127.0.0.1:4444>

This API provides endpoints for managing bank account applications with OCR-based data extraction capabilities.

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## Health Check

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### GET /

Returns API status and version information.

#### Response:

```
{
  "message": "Hello World!",
  "status": "API is running",
  "version": "1.0.0"
}
```

---

## Account Applications

---

### Create Application

POST [/account-applications](#)

Creates a new account application. The `account_no` and `iban` are auto-generated.

**Request Body:** `AccountApplicationCreate`

```
{
  "title_of_account": "JOHN DOE",
  "name": "JOHN DOE",
  "name_on_card": "JOHN DOE",
  "cnic_no": "12345-1234567-1",
  "fathers_husbands_name": "JAMES DOE",
  "mothers_name": "JANE DOE",
  "marital_status": "SINGLE",
  "gender": "MALE",
  "nationality": "PAKISTANI",
  "place_of_birth": "KARACHI",
  "date_of_birth": "1990-01-15",
  "cnic_expiry_date": "2030-01-15",
  "house_no_block_street": "HOUSE 123, BLOCK A, STREET 5",
  "area_location": "GULSHAN",
  "city": "KARACHI",
  "postal_code": "75300",
  "occupation": "SERVICE_PRIVATE",
  "purpose_of_account": "SALARY",
  "source_of_income": "EMPLOYMENT",
  "expected_monthly_turnover_dr": 50000,
  "expected_monthly_turnover_cr": 60000,
  "residential_status": "HOUSE_OWNED",
  "residing_since": "2015-01-01",
  "next_of_kin_name": "JANE DOE",
  "next_of_kin_relation": "S/O",
  "next_of_kin_cnic": "12345-1234567-2",
  "next_of_kin_relationship": "MOTHER",
  "next_of_kin_contact_no": "03001234567",
  "next_of_kin_address": "HOUSE 456, BLOCK B",
  "next_of_kin_email": "jane.doe@email.com",
  "internet_banking": true,
  "mobile_banking": true,
  "check_book": true,
  "sms_alerts": true,
  "card_type_gold": true,
  "card_type_classic": false,
  "zakat_deduction": false
}
```

**Response:** `200 OK` - Returns created `AccountApplication` object with auto-generated `id`, `account_no`, and `iban`.

---

## Get All Applications

## GET /account-applications

Retrieves all account applications.

**Response:** 200 OK - Array of AccountApplication objects.

```
[
  {
    "id": 1,
    "account_no": "123456789012",
    "iban": "PK123456789012345678",
    "title_of_account": "JOHN DOE",
    "name": "JOHN DOE",
    "cnic_no": "12345-1234567-1",
    ...
  }
]
```

---

## Get Application by ID

### GET /account-applications/{application\_id}

Retrieves a specific account application by its ID.

#### Path Parameters:

Parameter	Type	Required	Description
application_id	integer	Yes	Unique application identifier

**Response:** 200 OK - AccountApplication object

**Error Response:** 404 Not Found - Application not found

---

## Update Application

### PUT /account-applications/{application\_id}

Updates an existing account application.

#### Path Parameters:

Parameter	Type	Required	Description
<code>application_id</code>	integer	Yes	Unique application identifier

**Request Body:** `AccountApplication` object with updated fields.

**Response:** `200 OK` - Updated `AccountApplication` object

**Error Response:** `404 Not Found` - Application not found

---

## Delete Application

**DELETE** `/account-applications/{application_id}`

Deletes an account application by its ID.

**Path Parameters:**

Parameter	Type	Required	Description
<code>application_id</code>	integer	Yes	Unique application identifier

**Response:** `200 OK` - Deletion confirmation

**Error Response:** `404 Not Found` - Application not found

---

## Search Endpoints

### Search by CNIC

**GET** `/account-applications/search/cnic/{cnic_no}`

Search for an account application by CNIC number.

**Path Parameters:**

Parameter	Type	Required	Description
<code>cnic_no</code>	string	Yes	CNIC number (format: <code>12345-1234567-1</code> )

**Response:** 200 OK - AccountApplication object

**Error Response:** 404 Not Found - Account application not found

---

## Search by Account Type

**GET** /account-applications/search/account-type/{account\_type}

Search for account applications by account type.

**Path Parameters:**

Parameter	Type	Required	Description
account_type	string	Yes	Account type: CURRENT, SAVINGS, or AHU_LAT

**Response:** 200 OK - Array of AccountApplication objects

---

## Search by City

**GET** /account-applications/search/city/{city}

Search for account applications by city.

**Path Parameters:**

Parameter	Type	Required	Description
city	string	Yes	City name (in uppercasing)

**Response:** 200 OK - Array of AccountApplication objects

---

## Search by Account Number

**GET** /account-applications/search/account-number/{account\_no}

Search for an account application by account number.

### Path Parameters:

Parameter	Type	Required	Description
<code>account_no</code>	string	Yes	12-digit account number

**Response:** 200 OK - `AccountApplication` object

**Error Response:** 404 Not Found - Account application not found

---

## Search by IBAN

**GET** `/account-applications/search/iban/{iban}`

Search for an account application by IBAN.

### Path Parameters:

Parameter	Type	Required	Description
<code>iban</code>	string	Yes	IBAN (format: PK + 18 digits)

**Response:** 200 OK - `AccountApplication` object

**Error Response:** 404 Not Found - Account application not found

---

## Utility Endpoints

### Get Applications Count

**GET** `/account-applications/count`

Get the total count of all account applications.

**Response:** 200 OK

```
{
  "total_applications": 150
}
```



```
}
```

## Get Paginated Applications

**GET** `/account-applications/paginated`

Get paginated list of account applications.

**Query Parameters:**

Parameter	Type	Required	Default	Description
<code>skip</code>	integer	No	0	Number of records to skip
<code>limit</code>	integer	No	10	Maximum number of records to return

**Example:** `/account-applications/paginated?skip=10&limit=20`

**Response:** `200 OK` - Array of `AccountApplication` objects

## Data Models

### AccountApplicationCreate

Schema for creating new applications (without auto-generated fields).

Field	Type	Required	Description
<code>title_of_account</code>	string	<b>Yes</b>	Account title (BLOCK LETTERS)
<code>name</code>	string	<b>Yes</b>	Name as per CNIC (BLOCK LETTERS)
<code>cnic_no</code>	string	<b>Yes</b>	CNIC number (format: <code>12345-</code>

Field	Type	Required	Description
			1234567-1)
name_on_card	string	No	Name for card (must match <b>name</b> )
fathers_husbands_name	string	No	Father's/Husband's name
mothers_name	string	No	Mother's name
marital_status	MaritalStatus	No	Marital status
gender	Gender	No	Gender
nationality	string	No	Nationality
place_of_birth	string	No	Place of birth
date_of_birth	string	No	Date of birth (YYYY-MM-DD)
cnic_expiry_date	string	No	CNIC expiry date
house_no_block_street	string	No	House address details
area_location	string	No	Area/Location
city	string	No	City name
postal_code	string	No	Postal code (5 digits)
occupation	Occupation	No	Occupation type
occupation_other	string	No	Other occupation details
purpose_of_account	string	No	Purpose of account
source_of_income	string	No	Source of income
expected_monthly_turnover_dr	float	No	Expected debit turnover (Rs M)
expected_monthly_turnover_cr	float	No	Expected credit turnover (Rs M)

Field	Type	Required	Description
<code>residential_status</code>	ResidentialStatus	No	Residential status
<code>residential_status_other</code>	string	No	Other residential details
<code>residing_since</code>	string	No	Residing since date
<code>next_of_kin_name</code>	string	Conditional*	Next of kin name
<code>next_of_kin_relation</code>	string	Conditional*	Relation (S/W/D/O)
<code>next_of_kin_cnic</code>	string	Conditional*	Next of kin CNIC
<code>next_of_kin_relationship</code>	string	No	Relationship type
<code>next_of_kin_contact_no</code>	string	No	Contact number
<code>next_of_kin_address</code>	string	No	Address
<code>next_of_kin_email</code>	string	No	Email address
<code>internet_banking</code>	boolean	No	Enable internet banking
<code>mobile_banking</code>	boolean	No	Enable mobile banking
<code>check_book</code>	boolean	No	Request check book
<code>sms_alerts</code>	boolean	No	Enable SMS alerts
<code>card_type_gold</code>	boolean	No	Request Gold card
<code>card_type_classic</code>	boolean	No	Request Classic card
<code>zakat_deduction</code>	boolean	No	Enable Zakat deduction

\*Conditional: If any next of kin field is provided, `name`, `relation`, and `cnic` become required.

# AccountApplication

Full schema including auto-generated fields (used for responses and updates).

Field	Type	Description
id	integer	Unique identifier (auto-generated)
account_no	string	12-digit account number (auto-generated)
iban	string	IBAN (PK + 18 digits, auto-generated)
date	string	Application date
branch_city	string	Branch city
branch_code	string	Branch code
sbp_code	string	SBP code
account_type	AccountType	Account type
+ All fields from AccountApplicationCreate		

## Enumerations

### AccountType

Value	Description
CURRENT	Current Account
SAVINGS	Savings Account
AHU_LAT	Ahu Lat Account

### MaritalStatus

Value	Description
SINGLE	Single
MARRIED	Married
DIVORCED	Divorced
WIDOWED	Widowed

Gender

Value	Description
MALE	Male
FEMALE	Female
OTHER	Other

Occupation

Value	Description
SERVICE_GOVT	Government Service
SERVICE_PRIVATE	Private Service
FARMER	Farmer
HOUSE_WIFE	House Wife
STUDENT	Student
OTHER	Other

ResidentialStatus

Value	Description
HOUSE_OWNED	Owned House
RENTAL	Rental
FAMILY	Family House
OTHER	Other

---

# Validation Rules

## General Rules

- 1. **BLOCK LETTERS:** All text fields must be in uppercase
  - Applies to: `name`, `title_of_account`, `fathers_husbands_name`, `mothers_name`, `nationality`, `place_of_birth`, `house_no_block_street`, `area_location`, `city`, `purpose_of_account`, `source_of_income`, `next_of_kin_name`, `next_of_kin_address`, `occupation_other`, `residential_status_other`, `name_on_card`
- 2. **Name Consistency:** `title_of_account`, `name`, and `name_on_card` must be identical

## Field-Specific Validations

Field	Validation Rule
<code>cnic_no</code>	Format: <code>12345-1234567-1</code> (5 digits - 7 digits - 1 digit)
<code>next_of_kin_cnic</code>	Same format as CNIC
<code>date_of_birth</code>	Date format: <code>YYYY-MM-DD</code>
<code>cnic_expiry_date</code>	Date format: <code>YYYY-MM-DD</code>
<code>postal_code</code>	5-digit numeric code
<code>next_of_kin_contact_no</code>	Valid phone number format
<code>next_of_kin_email</code>	Valid email format
<code>account_no</code>	12-digit numeric (auto-generated)
<code>iban</code>	PK + 18 digits (auto-generated)

## Next of Kin Validation

If **any** next of kin field is provided, the following fields become **required**:

- `next_of_kin_name`

- next\_of\_kin\_relation
- next\_of\_kin\_cnic

---

# Error Responses

---

## Standard Error Format

```
{
  "detail": "Error message description"
}
```

## Common HTTP Status Codes

Status Code	Description
200 OK	Request successful
404 Not Found	Resource not found
422 Unprocessable Entity	Validation error
500 Internal Server Error	Server error

## Validation Error Example

```
{
  "detail": [
    {
      "loc": ["body", "cnic_no"],
      "msg": "CNIC must be in format: 12345-1234567-1",
      "type": "value_error"
    }
  ]
}
```

# API Endpoints Summary

Method	Endpoint	Description
GET	/	Health check
POST	/account-applications	Create new application
GET	/account-applications	Get all applications
GET	/account-applications/{id}	Get application by ID
PUT	/account-applications/{id}	Update application
DELETE	/account-applications/{id}	Delete application
GET	/account-applications/search/cnic/{cnic}	Search by CNIC
GET	/account-applications/search/account-type/{type}	Search by account type
GET	/account-applications/search/city/{city}	Search by city
GET	/account-applications/search/account-number/{no}	Search by account number
GET	/account-applications/search/iban/{iban}	Search by IBAN
GET	/account-applications/count	Get total count
GET	/account-applications/paginated	Get paginated list

## Running the API

```
# Install dependencies
pip install -r requirements.txt

# Run the server
python main.py
```

The API will be available at <http://127.0.0.1:4444>



# Interactive Documentation

- **Swagger UI:** <http://127.0.0.1:4444/docs>
- **ReDoc:** <http://127.0.0.1:4444/redoc>