CAP SYSTEM - COMPACT DIAGRAMS

1. CONTEXT DIAGRAM (Level 0 DFD)

```
            Exam Results
   ENTRANCE EXAM ─────────────────┐
   SYSTEMS          │
                    ↓
   CANDIDATES ──────────────→ ┌──────────┐ ──────────→ INSTITUTES
    • Register       │      │ Allotment
    • Apply          │  CAP │ Lists
                     │ SYSTEM │
   E-SCRUTINY ───────────────→ │      │ ←─────────── FACILITATION
   OFFICERS          │      │ Verify  CENTERS
    • Verify         └──────┬──────┘
                            │
   PAYMENT  ←───────────────┬─────────────────→ DOCUMENT
   GATEWAY   Process        │   Store   STORAGE
                            ↓
              NOTIFICATIONS
              (SMS/Email)
```
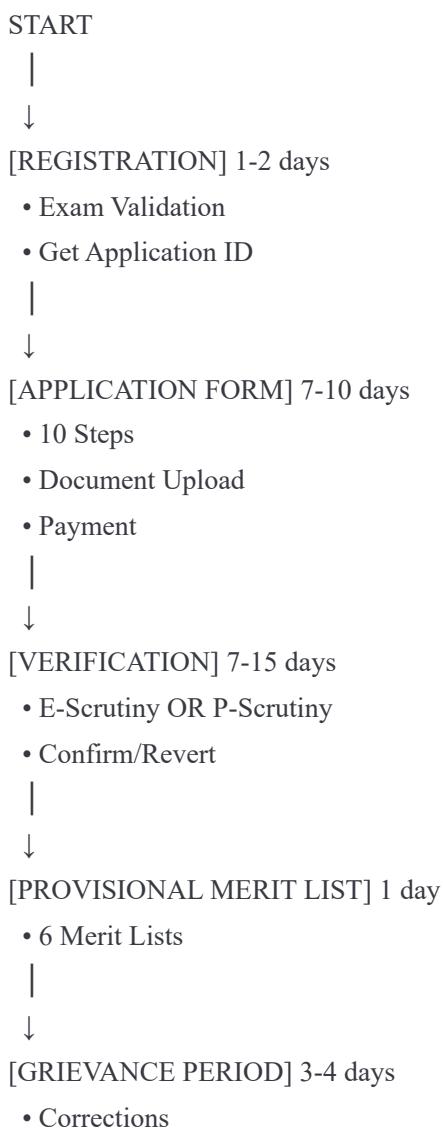
2. LEVEL 1 DFD - MAIN PROCESSES

```
CANDIDATES
   │
   ↓
 ┌──────────────────┐   ┌──────────────┐
 │ 1.0 REGISTRATION │──────────→ │ D1: Users │
 │ & APPLICATION    │      └──────────┘
 └──────────────────┘
     │ Apps    ┌──────────────┐
     ↓         │ D2: Documents │
 ┌──────────────────┐ ─────────→ │    │
 │ 2.0 VERIFICATION │   └──────────┘
 └──────────────────┘
     │ Confirmed ┌──────────────┐
     ↓           │ D3: Merit │
 ┌──────────────────┐ ────────→ │   │
 │ 3.0 MERIT LIST   │   └────────┘
 └──────────────────┘
     │ Merit Lists ┌──────────────┐
     ↓             │ D4: Options │
 ┌──────────────────┐ ─────→ │   │
 │ 4.0 OPTION FORM  │   └──────┘
```

```
  │ Choices
  ↓           │ D5: Allotment │
            ┌──────────────→ │        │
│ 5.0 ALLOTMENT  │   └──────────────┘
  │ Allotments
  ↓           │ D6: Payment │
            ┌──────────────→ │        │
│ 6.0 SEAT    │   └──────────────┘
│  ACCEPTANCE  │
  │ Confirmed
  ↓           │ D7: Institute │
            ┌──────────────→ │        │
│ 7.0 INSTITUTE  │   └──────────────┘
│  REPORTING   │
```

3. COMPLETE CAP PROCESS FLOWCHART

```
START
  │
  ↓
[REGISTRATION] 1-2 days
  • Exam Validation
  • Get Application ID
  │
  ↓
[APPLICATION FORM] 7-10 days
  • 10 Steps
  • Document Upload
  • Payment
  │
  ↓
[VERIFICATION] 7-15 days
  • E-Scrutiny OR P-Scrutiny
  • Confirm/Revert
  │
  ↓
[PROVISIONAL MERIT LIST] 1 day
  • 6 Merit Lists
  │
  ↓
[GRIEVANCE PERIOD] 3-4 days
  • Corrections
```

```
              |
              ↓
[FINAL MERIT LIST] 1 day
  • Locked Rankings
              |
              ↓
  ╔══════════════════╗
  ║ CAP ROUND I      ║ 14-21 days
  ║ • Option Form    ║
  ║ • Allotment      ║
  ║ • Seat Acceptance ║
  ║ • Institute Report║
  ╚══════════════════╝

              |
              ↓
[VACANCY REPORT] 1-2 days
              |
              ↓
  ╔══════════════════╗
  ║ CAP ROUND II     ║ 14-21 days
  ╚══════════════════╝

              |
              ↓
[VACANCY REPORT] 1-2 days
              |
              ↓
  ╔══════════════════╗
  ║ CAP ROUND III    ║ 14-21 days
  ╚══════════════════╝

              |
              ↓
END


Total: 10-12 weeks
```

4. REGISTRATION FLOWCHART

```
START
   |
   ↓
[Enter Exam Details]
   |
   ↓
<Validate Exam> ─NO→ ERROR
   | YES
   ↓
```

```
<Score > 0?> ─NO→ ERROR
  │ YES
  ↓
[Personal Details]
  │
  ↓
[Address Details]
  │
  ↓
[Mobile + Email]
  │
  ↓
<Duplicate?> ─YES→ ERROR
  │ NO
  ↓
[Create Password]
  │
  ↓
[Generate OTP]
  │
  ↓
[Send SMS/Email]
  │
  ↓
[Enter OTP]
  │
  ↓
<OTP Valid?> ─NO→ RETRY (Max 3)
  │ YES
  ↓
[Generate App ID]
  │
  ↓
[Send Confirmation]
  │
  ↓
END
```

5. VERIFICATION FLOWCHART (E-Scrutiny)

```
START
  │
  ↓
[Auto-Assign Officer]
  │
  ↓
```

```
[Officer Picks Up]
  |
  ↓
┌─────────────┐
│ Verify 7 Steps: │
│ 1. Personal    │
│ 2. Candidature │
│ 3. Category    │
│ 4. Special Res │
│ 5. Qualification│
│ 6. Exam Scores │
│ 7. Photo/Sign  │
└─────────────┘
      |
      ↓
<Mandatory Issue?> ─YES→ [REVERT] → Wait
      | NO                    |
      ↓                       |
<Optional Issue?> ─YES→ [Remove     |
      | NO        Benefit]      |
      ↓          |        |
   [CONFIRM]     ↓        |
      |       [PROVISIONAL    |
      |        CONFIRM]       |
      |          |        |
      └──────────┴────────┘        |
         ↓          |              |
    [Acknowledgement]          |
         ↓          |
        END             |
                    |
                    |
   [Candidate Corrects] ←─────────┘
```
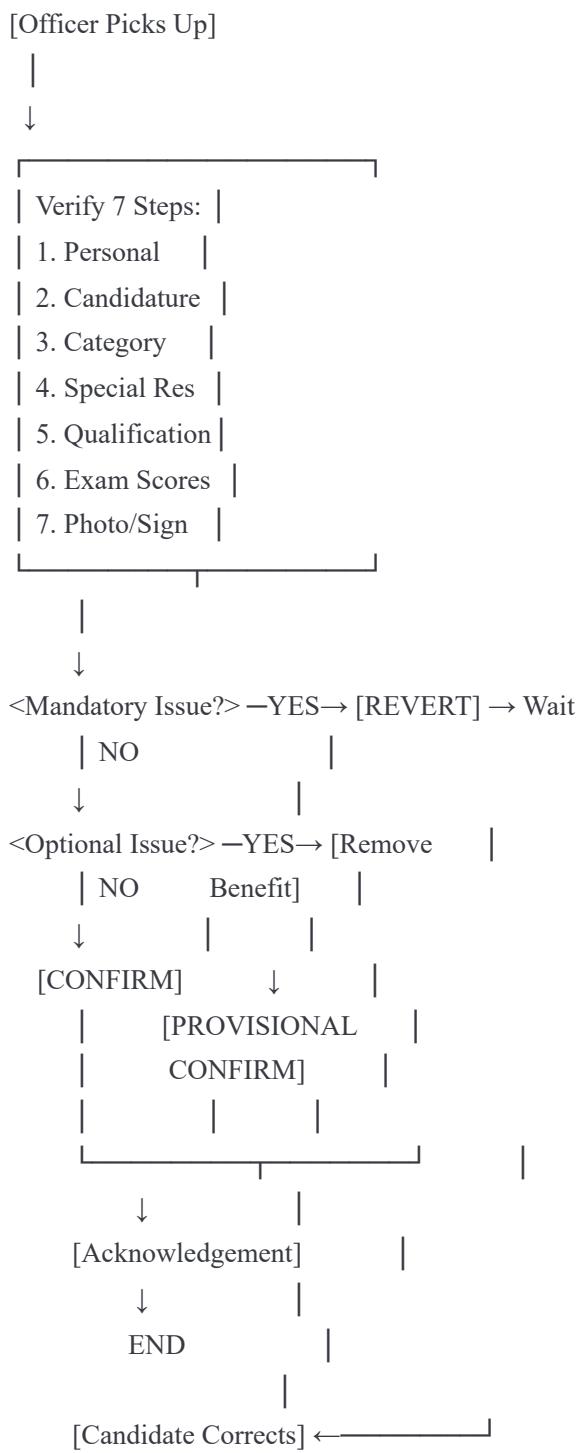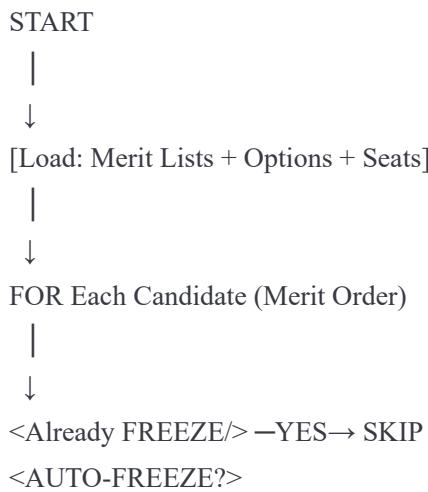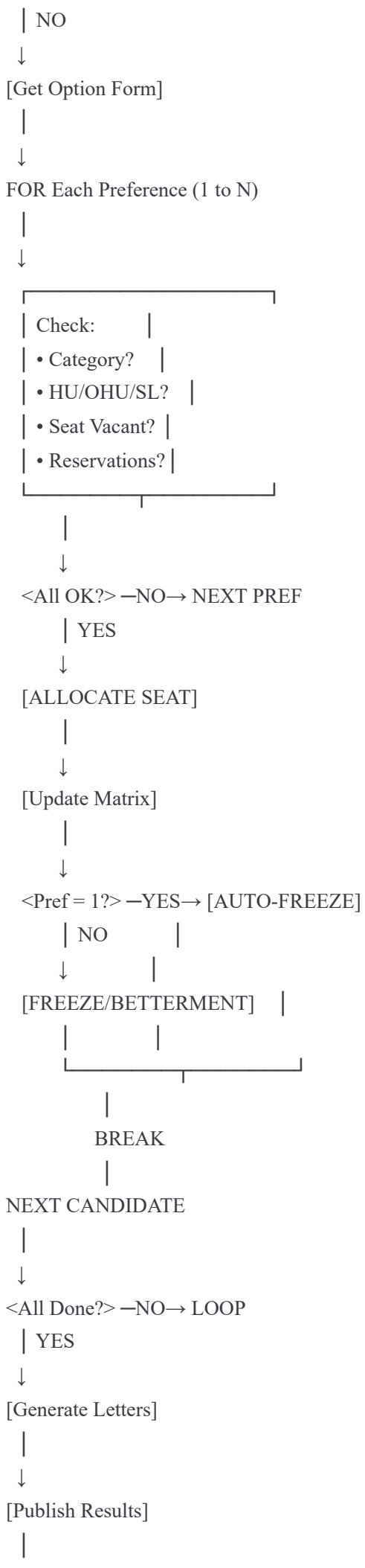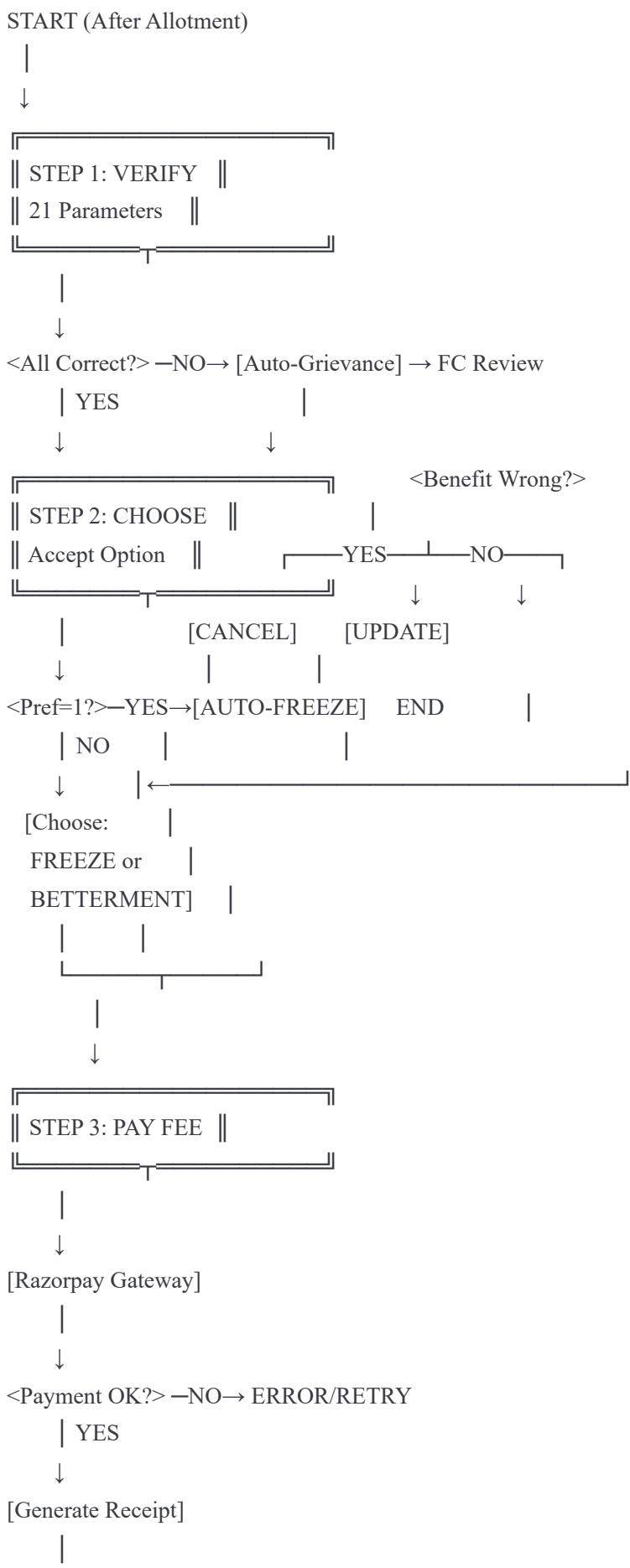
6. ALLOTMENT ALGORITHM FLOWCHART

```
START
  |
  ↓
[Load: Merit Lists + Options + Seats]
  |
  ↓
FOR Each Candidate (Merit Order)
  |
  ↓
<Already FREEZE/> ─YES→ SKIP
<AUTO-FREEZE?>
```

```
   │ NO
   ↓
[Get Option Form]
   │
   ↓
FOR Each Preference (1 to N)
   │
   ↓

   ┌──────────────────────┐
   │ Check:            │
   │ • Category?       │
   │ • HU/OHU/SL?      │
   │ • Seat Vacant?   │
   │ • Reservations?  │
   └──────────┬───────────┘
              │
              ↓
   <All OK?> ─NO→ NEXT PREF
        │ YES
        ↓
   [ALLOCATE SEAT]
           │
           ↓
   [Update Matrix]
           │
           ↓
   <Pref = 1?> ─YES→ [AUTO-FREEZE]
        │ NO        │
        ↓           │
   [FREEZE/BETTERMENT]   │
        │        │
        └─────────────────┐
           │
        BREAK
           │
NEXT CANDIDATE
   │
   ↓
<All Done?> ─NO→ LOOP
   │ YES
   ↓
[Generate Letters]
   │
   ↓
[Publish Results]
   │
```

```
  ↓
END
```

7. SEAT ACCEPTANCE FLOWCHART

```
START (After Allotment)
  |
  ↓
╔═══════════════════╗
║ STEP 1: VERIFY    ║
║ 21 Parameters     ║
╚═════════╤═════════╝
          |
          ↓
<All Correct?> ─NO→ [Auto-Grievance] → FC Review
      | YES                    |
      ↓                        ↓
╔═══════════════════╗     <Benefit Wrong?>
║ STEP 2: CHOOSE    ║          |
║ Accept Option     ║    ┌─YES──┴──NO─┐
╚═════════╤═════════╝    |            |
      |         [CANCEL]  ↓            ↓
      ↓            |    [UPDATE]
<Pref=1?>─YES→[AUTO-FREEZE]   END         |
    | NO      |              |
    ↓         |←─────────────────────────┘
  [Choose:    |
   FREEZE or  |
   BETTERMENT] |
     |     |
     └──┬──────┘
        |
        ↓
╔═══════════════════╗
║ STEP 3: PAY FEE   ║
╚═════════╤═════════╝
        |
        ↓
[Razorpay Gateway]
        |
        ↓
<Payment OK?> ─NO→ ERROR/RETRY
      | YES
      ↓
[Generate Receipt]
        |
```

```
            ↓
    ╔═══════════════════╗
    ║ STEP 4: CONFIRM   ║
    ╚═════════╤═════════╝
              │
              ↓
    [Enter Password]
              │
              ↓
    [Enter OTP]
              │
              ↓
    [Generate Acceptance Letter]
              │
              ↓
    [Send Notifications]
              │
              ↓
    END (Report to Institute)
```

8. DATA FLOW - REGISTRATION TO ADMISSION

```
    ┌───────────────┐
    │ CANDIDATE     │
    └───────┬───────┘
            │ (1) Register
            ↓
    ┌───────────────┐
    │ Application   │
    │   ID          │
    └───────┬───────┘
            │ (2) Fill Form
            ↓
    ┌───────────────┐
    │ Application   │
    │   Data        │
    └───────┬───────┘
            │ (3) Verify
            ↓
    ┌───────────────┐
    │ Confirmed     │
    │ Application   │
    └───────┬───────┘
            │ (4) Merit Calc
            ↓
    ┌───────────────┐
```
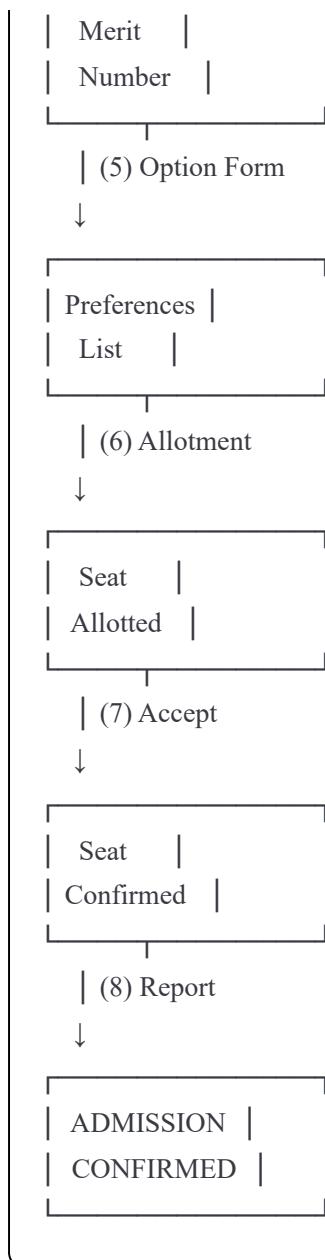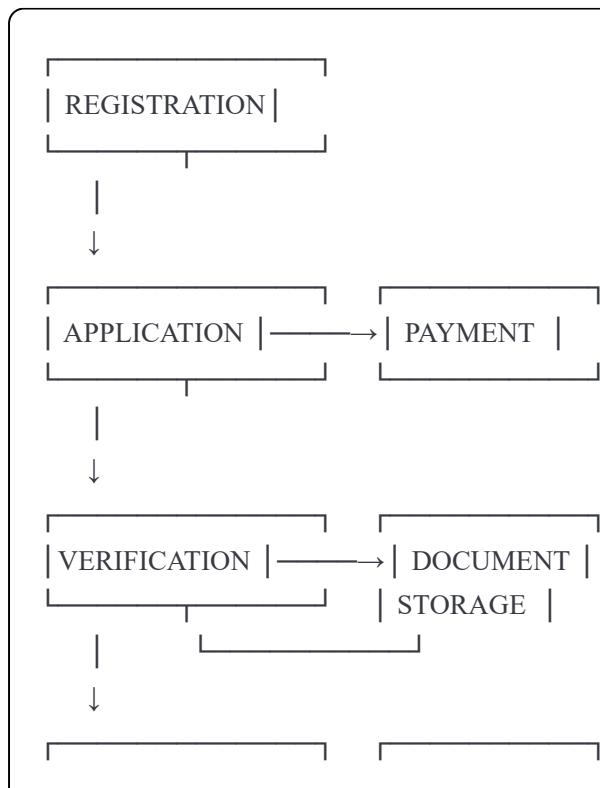
```
┌─────────────┐
│  Merit      │
│  Number     │
└────┬────────┘
     │ (5) Option Form
     ↓
┌─────────────┐
│ Preferences │
│  List       │
└────┬────────┘
     │ (6) Allotment
     ↓
┌─────────────┐
│  Seat       │
│  Allotted   │
└────┬────────┘
     │ (7) Accept
     ↓
┌─────────────┐
│  Seat       │
│  Confirmed  │
└────┬────────┘
     │ (8) Report
     ↓
┌─────────────┐
│  ADMISSION  │
│  CONFIRMED  │
└─────────────┘
```
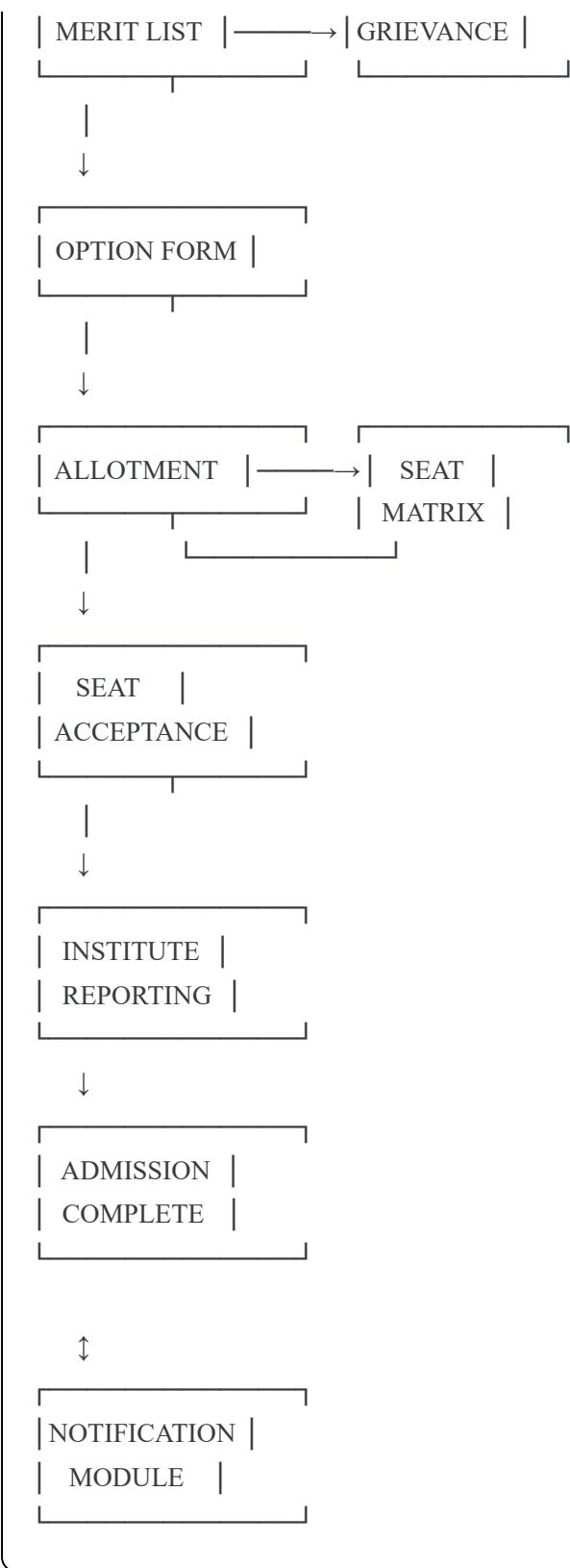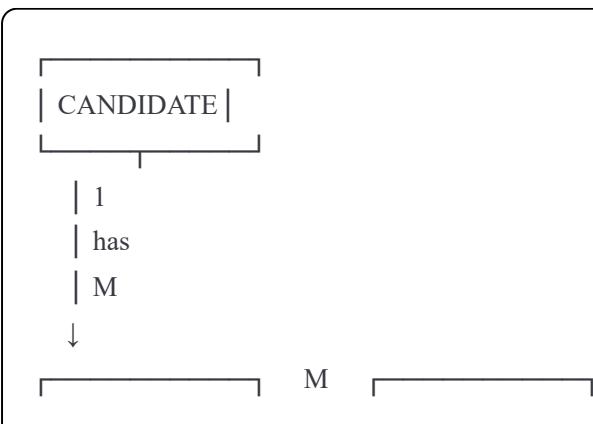
9. MODULE INTERACTION DIAGRAM

```
┌──────────────┐
│ REGISTRATION │
└──────┬───────┘
       │
       ↓
┌──────────────┐          ┌──────────────┐
│ APPLICATION  │─────────→│  PAYMENT     │
└──────┬───────┘          └──────────────┘
       │
       ↓
┌──────────────┐          ┌──────────────┐
│ VERIFICATION │─────────→│  DOCUMENT    │
└──────┬───────┘          │  STORAGE     │
       │     └────────────┘
       ↓
┌──────────────┐          ┌──────────────┐
```

```
┌──────────────┐      ┌───────────┐
│ MERIT LIST   │─────→│ GRIEVANCE │
└──────┬───────┘      └───────────┘
       │
       ↓
┌──────────────┐
│ OPTION FORM │
└──────┬───────┘
       │
       ↓
┌──────────────┐      ┌───────────┐
│ ALLOTMENT    │─────→│  SEAT     │
└──────┬───────┘      │ MATRIX    │
       │     └─────────────┘
       ↓
┌──────────────┐
│  SEAT        │
│ ACCEPTANCE   │
└──────┬───────┘
       │
       ↓
┌──────────────┐
│ INSTITUTE    │
│ REPORTING    │
└──────────────┘
       ↓
┌──────────────┐
│ ADMISSION    │
│ COMPLETE     │
└──────────────┘

       ↕
┌──────────────┐
│NOTIFICATION │
│  MODULE      │
└──────────────┘
```

10. ENTITY RELATIONSHIP DIAGRAM
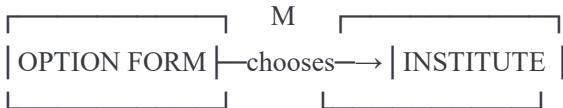
```
┌──────────────┐
│ CANDIDATE│
└──────┬───────┘
       │ 1
       │ has
       │ M
       ↓
┌──────────────┐   M   ┌───────────┐
```

```
┌──────────────┐              ┌─────────────┐
│ APPLICATION  │──uploads──→  │ DOCUMENTS   │
└──────┬───────┘              └─────────────┘
       │ 1
       │ receives
       │ 1
       ↓
┌──────────────┐
│ VERIFICATION │
└──────┬───────┘
       │ 1
       │ generates
       │ M
       ↓
┌──────────────┐
│ MERIT LIST   │
└──────┬───────┘
       │ 1
       │ creates
       │ 1
       ↓
┌──────────────┐    M     ┌─────────────┐
│ OPTION FORM  ├──chooses──→ │ INSTITUTE │
└──────┬───────┘          └──────┬──────┘
       │ 1        │ M            │ M
       │ gets     │ offers
       │ M        │ M
       ↓          ↓
┌──────────────┐       ┌─────────────┐
│ ALLOTMENT    │───────│ COURSE      │
└──────┬───────┘ allocates └─────────┘
       │ 1
       │ requires
       │ 1
       ↓
┌──────────────┐
│ PAYMENT      │
└──────┬───────┘
       │ 1
       │ confirms
       │ 1
       ↓
┌──────────────┐
│   SEAT       │
│ ACCEPTANCE   │
└──────┬───────┘
       │ 1
       │ leads to
```

```
  │ 1
  ↓
┌─────────┐
│ADMISSION│
└─────────┘
```

END OF COMPACT DIAGRAMS

Total Pages: ~10 pages in PDF format