**Proposed Database Design of**

**Module I :(SIS)**

**Introduction**

This document outlines the design and development process for the database architecture of a Student Information System (SIS). The purpose of this system is to manage and streamline academic data such as student records, courses, grades, transcripts, and academic performance metrics. The system is designed to facilitate the administration and management of student information for educational institutions.

The design focuses on ensuring data consistency, normalization, and ease of access for users like administrators and students. It also ensures scalability and flexibility for future enhancements.

**Objective**

The main objectives of the SIS database design are distributed to four phases to create an efficient, well-structured system to handle the following:

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| Phase I | 1. Student information i.e., profile, contacts, health, activities 2. Admission and Interview processes merge with ODMS 3. Lookup Tables |
| Phase II | 1. Payment Process 2. Student registration Process merge with ERS |
| Phase III | 1. Course management 2. Student course registration and records 3. Academic year and semester management. 4. Grading and assessment |
| Phase VI | 1. Fs & Zs, and repeated cases Process 2. Course information and associated lecturers. 3. Examination results and grading. 4. Student performance tracking and transcript generation. |

**Database Design Overview**

The main tables in Phase I:

 Branch

 Faculty

 Major

 BatchControl

 admission\_interview

 admission\_online

 medical\_clinics

 medical\_file

 student\_profile

 student\_guardian

 student\_high\_school

 student\_main\_info

The lookup tables in Phase I:

 lookup\_certificate\_major

 lookup\_certificate\_type

 lookup\_military\_code

 lookup\_medical\_test\_reguested

 lookup\_sections

 lookup\_supervisors

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| **Branch** | | |
| **Field Name** | **Data Type** | **Description** |
| **branch\_id** | int(11) PK | Unique identifier for each branch |
| branch\_name | VARCHAR100) | Name of the branch (e.g., SDN Campus, EGP Campus) |
| branch\_address | VARCHAR255) | Address of the branch |
| branch\_Counrty | VARCHAR100) | Country where the branch is located |
| branch\_city | VARCHAR100) | City where the branch is located |
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| **Faculty** | | |
| **Field Name** | **Data Type** | **Description** |
| faculty\_id | INT (Primary Key) | Unique identifier for each faculty |
| faculty\_name | VARCHAR100) | The name of the faculty (e.g., Faculty of Engineering) |
| abbreviation | VARCHAR10) | Short code or abbreviation for the faculty |
| faculty\_nameAr | VARCHAR100) | Detailed description of the faculty |
| branch\_id | INT (Foreign Key) | Links to the branch table to identify the location (if multi-campus) |
| Status | Yes/NO | is the Faculty Active or Inactive |
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| **Major** | | |
| **Field Name** | **Data Type** | **Description** |
| **major\_id** | **int(11) PK** | **Unique identifier for the major (primary key).** |
| major\_name | varchar(50) | Name of the major in English. |
| major\_abbreviation | varchar(10) | Abbreviation for the major (e.g., "SCI" for Computer Science). |
| degree\_type | tinyint(4) | Represents the type of degree (e.g., 1 = Bachelor, 2 = Deplom, 3 = Master). |
| program\_duration | int(11) | Duration of the program in years. |
| number\_of\_sem | int(11) | Total number of semesters required to complete the program. |
| credits\_required | int(11) | Total number of credits a student must complete for graduation. |
| *faculty\_id* | *int(11) FK* | *Foreign key referencing the faculty to which the major belongs.* |
| status | tinyint(4) | Indicates the status of the major (e.g., 1 = Active, 0 = Inactive). |
| major\_name\_ar | varchar(100) | Name of the major in Arabic. |
| major\_ministry\_code | varchar(50) | Code assigned to the major by the Ministry of Education |
| major\_mode | int(11) | Represents the mode of study for the major (e.g., 1 = physical/offline, 2 = Online,3 = mixed) (optional) |
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| **BatchControl** | | |
| **Field Name** | **Data Type** | **Description** |
| batch\_control\_id | int(11) | Unique identifier for the batch control (primary key). |
| branch\_id | int(11) | Foreign key referencing the branch to which the batch belongs. |
| faculty\_id | int(11) | Foreign key referencing the faculty to which the batch belongs. |
| major\_id | int(11) | Foreign key referencing the major associated with the batch. |
| batch | varchar(20) | Name or identifier of the batch (e.g., "Batch 2024"). |
| active\_sem | int(11) | The current active semester for the batch. |
| max\_sem | int(11) | The maximum number of semesters for the batch. |
| graduate\_status | tinyint(4) | Indicates the graduation status of the batch (e.g., 0 = Not Graduated, 1 = Graduated). |
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| **admission\_online** | | |
| **Field Name** | **Data Type** | **Description** |
| Admission\_ID | int(11) | Unique identifier for the admission record. |
| University\_ID | varchar(15) | Unique identifier for the university assigned to the student. |
| application\_level | int(11) | Level of application (e.g., 1 = Undergraduate, 2 = Postgraduate, etc.). |
| admission\_Status | tinyint(4) | Status of the admission process (e.g., 0 = Pending, 1 = Approved, 2 = Rejected). |
| Student\_ID | varchar(15) | Unique identifier for the student. |
| First\_Name | varchar(100) | Student's first name in English. |
| Second\_Name | varchar(100) | Student's second name in English (optional). |
| Third\_Name | varchar(100) | Student's third name in English (optional). |
| Last\_Name | varchar(100) | Student's last name in English. |
| First\_Name\_AR | varchar(100) | Student's first name in Arabic. |
| Second\_Name\_AR | varchar(100) | Student's second name in Arabic (optional). |
| Third\_Name\_AR | varchar(100) | Student's third name in Arabic (optional). |
| Last\_Name\_AR | varchar(100) | Student's last name in Arabic. |
| Student\_Photo | varchar(255) | Path or URL to the student's photo. |
| Activity\_Status | tinyint(1) | Indicates the student's activity status (1 = Active, 0 = Inactive). |
| Batch | varchar(20) | Batch to which the student belongs. |
| Current\_Semester | int(11) | Current semester of the student. |
| Branch\_ID | int(11) | Identifier for the branch where the student is admitted. |
| Faculty\_ID | int(11) | Identifier for the faculty. |
| Major\_ID | int(11) | Identifier for the major. |
| Student\_Study\_Mode | int(11) | Mode of study for the student (e.g., 1 = physical/offline, 2 = Online,3 = mixed) (optional) |
| Gender | int(11) | Gender of the student (e.g., 1 = Male, 2 = Female). |
| Blood\_Group | int(11) | Student's blood group (e.g., 1 = A+, 2 = A-, etc.). |
| military\_code[[1]](#footnote-2) | int(11) | Military code or exemption number for the student (complete, postponed.).[[2]](#footnote-3) |
| Date\_Of\_Birth | date | Date of birth of the student. |
| Nationality | int(11) | Identifier for the primary nationality. |
| Nationality2 | int(11) | Identifier for the secondary nationality (optional). |
| Student\_Address | varchar(255) | Full address of the student. |
| Student\_Town | varchar(100) | Town or city where the student resides. |
| Student\_State | varchar(100) | State or region of residence. |
| Student\_Country | varchar(100) | Country of residence. |
| Student\_Email | varchar(100) | Email address of the student. |
| Phone\_Number | varchar(20) | Primary phone number of the student. |
| whatsapp\_Number | varchar(20) | WhatsApp number of the student (optional). |
| Facebook\_link | varchar(255) | Link to the student's Facebook profile (optional). |
| twitter\_ID | varchar(255) | Twitter handle or ID of the student (optional). |
| Identification\_ID\_Type | int(11) | Type of identification (e.g., 1 = Passport, 2 = National ID). |
| Identification\_ID | varchar(50) | ID number of the identification document. |
| Identification\_ID\_IssueDate | date | Issue date of the identification document. |
| Identification\_ID\_Expired\_Date | date | Expiration date of the identification document. |
| Identification\_ID\_Issue\_Place | varchar(100) | Place where the identification document was issued. |
| Identification\_ID\_upload | varchar(255) | Path or URL to the uploaded identification document. |
| Place\_of\_residence | varchar(255) | Residence details of the student. |
| VISA\_ID | varchar(100) | Visa ID for the student (if applicable). |
| VISA\_Type | varchar(50) | Type of visa (e.g., student visa). |
| VISA\_Expired\_Date | date | Expiration date of the visa. |
| Religius | tinyint(4) | Religion of the student (e.g., 1 = Muslim, 2 = Christianity). |
| Sibling | tinyint(4) | Indicates if the student has siblings in the same institution (1 = Yes, 0 = No). |
| Guardian\_Name | varchar(100) | Name of the guardian. |
| Guardian\_Relationship | int(11) | Relationship to the guardian (e.g., 1 = Parent, 2 = Uncle, etc.). |
| Guardian\_Gender | bit(1) | Gender of the guardian (1 = Male, 0 = Female). |
| Ocupation | varchar(100) | Occupation of the guardian. |
| Work\_Location | varchar(255) | Workplace or location of the guardian. |
| Guardian\_Address | varchar(255) | Address of the guardian. |
| Guardian\_Email | varchar(100) | Email address of the guardian. |
| Guardian\_Phone\_Number | varchar(20) | Phone number of the guardian. |
| school\_Name | varchar(100) | Name of the school the student attended. |
| school\_place | varchar(100) | Location of the school the student attended. |
| Certificate\_No | varchar(50) | Certificate number of the student. |
| Certicate\_Issue\_date | date | Issue date of the certificate. |
| certificate\_type\_code | char(2) | Code for the certificate type (e.g., HS = SDN High School, Arabic High School, IGCSE). |
| certificate\_major\_code | char(3) | Code for the certificate major (e.g., SCI = Science, Math, etc). |
| pass\_percentage | decimal(5,2) | Percentage of marks obtained by the student. |
| No\_of\_subjects | int(11) | Number of subjects taken by the student. |
| Failed\_subjects | int(11) | Number of subjects failed by the student. |
| Student\_Certificate\_upload | varchar(255) | Path or URL to the uploaded student certificate. |

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| **admission\_interview** | | |
| **Field Name** | **Data Type** | **Description** |
| Interview\_ID | int(11) | Unique identifier for the interview record. |
| Admission\_ID | int(11) | Foreign key linking to the Admission\_ID in the admission\_online table. |
| University\_ID | varchar(15) | Identifier for the university to which the interview pertains. |
| Supervisor[[3]](#footnote-4)\_ID | int(11) | Identifier for the supervisor or interviewer conducting the interview. |
| Section\_ID[[4]](#footnote-5) | int(11) | Identifier for the section or department under which the interview was conducted. |
| Interview\_Result | tinyint(4) | Result of the interview (e.g., 0 = Failed, 1 = Passed). |
| Interview\_notes | varchar(50) | Notes or remarks about the interview (e.g., additional observations). |

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| **Medical\_Clinics** | | |
| **Field Name** | **Data Type** | **Description** |
| **Clinic\_ID** | **int(11) PK** | **Unique identifier for each clinic.** |
| Clinic\_Name | varchar(50) | Name of the clinic in English. |
| Clinic\_Name\_AR | varchar(50) | Name of the clinic in Arabic. |
| Location | text | Physical address or location of the clinic. |
| Contact\_No | varchar(50) | Primary contact number of the clinic. |
| Contact\_Person | varchar(100) | Name of the primary contact person for the clinic. |

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| **medical\_file** | | |
| **Field Name** | **Data Type** | **Description** |
| **Medical\_File\_ID** | **int(11) PK** | **Unique identifier for the medical file record.** |
| Student\_ID | varchar(15) | Foreign key linking to the student in student\_main\_info or related table. |
| Test\_ID[[5]](#footnote-6) | int(11) | Identifier for the type of medical test conducted. |
| Test\_Result | varchar(255) | Result of the medical test (e.g., "Positive", "Negative", or specific findings). |
| Remarks | text | Additional remarks or observations about the medical test or student condition. |
| Medical\_Report\_File | varchar(255) | Path or filename of the uploaded medical report file. |
| Clinic\_ID | int(11) | Foreign key linking to the Clinic\_ID in the medical\_clinics table. |
| Test\_Date | date | Date when the medical test was conducted. |
| University\_ID | varchar(15) | Foreign key for the student within the university system. |

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| **Student\_Main\_info** | | |
| **Field Name** | **Data Type** | **Description** |
| Student\_ID | varchar(15) | Unique for the student (primary key). |
| First\_Name | varchar(25) | Student's first name in English. |
| Second\_Name | varchar(25) | Student's second name in English (optional). |
| Third\_Name | varchar(25) | Student's third name in English (optional). |
| Last\_Name | varchar(25) | Student's last name in English. |
| First\_Name\_AR | varchar(100) | Student's first name in Arabic (optional). |
| Second\_Name\_AR | varchar(100) | Student's second name in Arabic (optional). |
| Third\_Name\_AR | varchar(100) | Student's third name in Arabic (optional). |
| Last\_Name\_AR | varchar(100) | Student's last name in Arabic (optional). |
| Student\_Photo | varchar(255) | Path or URL to the student's photo (optional). |
| University\_ID | varchar(15) | Unique identifier for the student within the university system. |
| Activity\_Status | tinyint(11) | Indicates the activity status of the student (e.g., 1 = Active, 0 = Inactive). |
| Batch | varchar(20) | Batch name or identifier the student belongs to (e.g., "Batch 2024"). |
| Current\_Semester | int(11) | The current semester the student is enrolled in (optional). |
| Branch\_ID | int(11) | Foreign key referencing the branch where the student is enrolled. |
| Faculty\_ID | int(11) | Foreign key referencing the faculty where the student is enrolled. |
| Major\_ID | int(11) | Foreign key referencing the major where the student is enrolled. |
| Student\_Study\_Mode | int(11) | Mode of study for the student (e.g., 1 = physical/offline, 2 = Online,3 = mixed) (optional) |
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| **student\_profile** | | |
| **Field Name** | **Data Type** | **Description** |
| Student\_ID | varchar(15) | Unique identifier for the student (foreign key linking to student\_main\_info). |
| Gender | int(11) | Gender of the student (e.g., 1 = Male, 2 = Female). |
| Blood\_Group | tinyint(4) | Blood group of the student (e.g., 1 = A+, 2 = A-, 3 = B+, etc.). |
| military\_code[[6]](#footnote-7) | int(11) | Military code or exemption number for the student (complete, postponed.). |
| Date\_Of\_Birth | date | Date of birth of the student. |
| Nationality | int(11) | Primary nationality of the student (references a nationality table). |
| Nationality2 | int(11) | Secondary nationality of the student (optional). |
| Student\_Address | varchar(255) | Full address of the student. |
| Student\_Town | varchar(100) | Town or city where the student resides. |
| Student\_State | varchar(100) | State or region where the student resides. |
| Country | varchar(100) | Country where the student resides. |
| Student\_Email | varchar(100) | Student's email address. |
| Phone\_Number | varchar(20) | Student's primary phone number. |
| whatsapp\_Number | varchar(20) | WhatsApp number for the student (optional). |
| Facebook\_link | varchar(255) | URL to the student's Facebook profile (optional). |
| twitter\_ID | varchar(255) | Student's Twitter handle or profile link (optional). |
| Identification\_ID\_Type | tinyint(4) | Type of identification document (e.g., 1 = Passport, 2 = National ID, etc.). |
| Identification\_ID | varchar(50) | Identification document number (e.g., passport number, national ID). |
| Identification\_ID\_Issue\_Date | date | Date when the identification document was issued. |
| Identification\_ID\_Expired\_Date | date | Expiration date of the identification document. |
| Identification\_ID\_Issue\_Place | varchar(100) | Place where the identification document was issued. |
| Identification\_ID\_upload | varchar(255) | Path or URL to the uploaded copy of the identification document. |
| Place\_of\_residence | varchar(255) | Detailed place of residence for the student. |
| VISA\_ID | varchar(100) | Visa number or ID for international students (if applicable). |
| VISA\_Type | varchar(50) | Type of visa the student holds (e.g., student visa, work visa). |
| VISA-Expired\_Date | date | Expiration date of the visa (if applicable). |
| Religius | tinyint(4) | Religion of the student (e.g., 1 = Muslim, 2 = Christianity). |
| Sibling | tinyint(1) | Indicates if the student has siblings in the same institution (1 = Yes, 0 = No). |

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| **student\_high\_school** | | |
| **field Name** | **Data Type** | **Description** |
| Student\_ID | varchar(15) | Foreign key linking to the student in the student\_main\_info table. |
| school\_Name | varchar(100) | Name of the high school attended by the student. |
| school\_place | varchar(100) | Location of the high school. |
| Certificate\_No | varchar(50) | Certificate number issued to the student. |
| Ministry\_No | varchar(50) | Number assigned by the Ministry of Education, if applicable. |
| Certicate\_Issue\_date | date | Date on which the certificate was issued. |
| certificate\_type\_ID[[7]](#footnote-8) | int(11) | Identifier for the type of certificate (e.g., High School, Technical). |
| certificate\_major\_ID[[8]](#footnote-9) | int(11) | Identifier for the major or specialization in the certificate (e.g., Science, Arts). |
| pass\_percentage | decimal(5,2) | Percentage score obtained by the student. |
| No\_of\_subjects | tinyint(4) | Number of subjects taken by the student. |
| Failed\_subjects | tinyint(4) | Number of subjects the student failed, if any. |
| Student\_Certificate\_upload | varchar(255) | Path or filename for the uploaded copy of the high school certificate. |

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| **student\_guardian** | | |
| **Field Name** | **Data Type** | **Description** |
| Student\_ID | varchar(15) | Foreign key linking to the student in the student\_main\_info table. |
| Guardian\_Name | varchar(100) | Full name of the student’s guardian. |
| Guardian\_Relationship | varchar(50) | Relationship of the guardian to the student (e.g., Father, Mother, Uncle). |
| Guardian\_Gender | bit(1) | Gender of the guardian (0 for Male, 1 for Female). |
| Ocupation | varchar(100) | Occupation or job title of the guardian. |
| Work\_Location | varchar(255) | Place where the guardian works. |
| Guardian\_Address | varchar(255) | Address of the guardian. |
| Guardian\_Email | varchar(100) | Email address of the guardian. |
| Guardian\_Phone\_Number | varchar(20) | Phone number of the guardian. |

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| **Users** | | |
| **Field Name** | **Data Type** | **Description** |
| UserID | INT | Unique identifier for each user.(staffID,StudentID) |
| Username | VARCHAR(50) | Unique username for user login. |
| PasswordHash | VARCHAR(255) | Hashed password for security. |
| Email | VARCHAR(100) | User's email address. |
| RoleID | INT | ID of the user's role (foreign key from UserRoles table). |
| CreatedAt | DATETIME | Timestamp when the user account was created. |
| LastLogin | DATETIME | Timestamp of the user's last login. |
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| **UserRoles** | | |
| **Field Name** | **Data Type** | **Description** |
| RoleID | INT | Unique identifier for each role. |
| RoleName | VARCHAR(100) | Name of the role (e.g., Admin, User). |
| Permissions | TEXT | Permissions associated with the role (e.g., read, write). |
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| **LoginAttempts** | | |
| **Field Name** | **Data Type** | **Description** |
| AttemptID | INT | Unique identifier for each user.(staffID,StudentID) |
| UserID | INT | ID of the user attempting to log in. |
| Timestamp | DATETIME | ` |
| Status | INT('Success', 'Failure') | Result of the login attempt (success or failure). |

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| **PasswordResets** | | |
| **Field Name** | **Data Type** | **Description** |
| ResetID | INT | Unique identifier for each password reset request. |
| UserID | INT | ID of the user requesting a password reset. (staffID,StudentID) |
| Token | VARCHAR(255) | Unique token for the password reset process. |
| RequestedAt | DATETIME | Timestamp when the password reset was requested. |
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| **AuditLogs** | | |
| **Field Name** | **Data Type** | **Description** |
| ExpiresAt | DATETIME | Expiration timestamp for the reset token. |
| LogID | INT | Unique identifier for each log entry. |
| UserID | INT | ID of the user who performed the action. |
| Action | VARCHAR(100) | Description of the action performed (e.g., login, data access). |
| Timestamp | DATETIME | Timestamp of when the action occurred. |

**Lookup tables:**

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| **lookup\_medical\_test\_reguested** | | |
| **Field Name** | **Data Type** | **Description** |
| Test\_ID | int(11) | Unique identifier for the medical test. |
| Test\_Name | varchar(25) | Name of the medical test in English. |
| Test\_Name\_ar | varchar(25) | Name of the medical test in Arabic for bilingual support. |

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| **lookup\_supervisors** | | |
| **field Name** | **Data Type** | **Description** |
| supervisor\_id | int(11) | Unique identifier for the supervisor. |
| supervisor\_name | varchar(100) | Name of the supervisor in English. |
| supervisor\_name\_ar | varchar(100) | Name of the supervisor in Arabic for bilingual support. |

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| **lookup\_sections** | | |
| **Field Name** | **Data Type** | **Description** |
| section\_id | int(11) | Unique identifier for the section. |
| section\_name | varchar(25) | Name of the section in English. |
| section\_name\_ar | varchar(25) | Name of the section in Arabic for bilingual support. |

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| **lookup\_military\_code** | | |
| **Field Name** | **Data Type** | **Description** |
| military\_code\_id | int(11) | Unique identifier for each military code. |
| military\_code\_name | varchar(25) | Name of the military code in English. |
| military\_code\_name\_ar | varchar(25) | Name of the military code in Arabic for bilingual support. |
| description | varchar(255) | Additional details or description about the military code. |

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| **lookup\_certificate\_major** | | |
| **Field Name** | **Data Type** | **Description** |
| certificate\_major\_id | int(11) | Unique identifier for each certificate major. |
| certificate\_major\_name | varchar(25) | Name of the certificate major in English. |
| certificate\_major\_name\_ar | varchar(25) | Name of the certificate major in Arabic for localization. |

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| **lookup\_certificate\_type** | | |
| **Field Name** | **Data Type** | **Description** |
| certificate\_type\_id | int(11) | Unique identifier for each certificate type. |
| certificate\_type\_name | varchar(25) | Name of the certificate type in English. |
| certificate\_type\_name\_ar | varchar(25) | Name of the certificate type in Arabic for localization |

1. lookup\_military\_code [↑](#footnote-ref-2)
2. [↑](#footnote-ref-3)
3. lookup\_supervisors table [↑](#footnote-ref-4)
4. lookup\_sections table [↑](#footnote-ref-5)
5. lookup\_medical\_test\_reguested table [↑](#footnote-ref-6)
6. lookup\_military\_code [↑](#footnote-ref-7)
7. lookup\_certificate\_type table [↑](#footnote-ref-8)
8. lookup\_certificate\_major table [↑](#footnote-ref-9)