**DBMS By Bash Script**

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**Open Source Application**

**Development**

**Intake 41**

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# **1) Introduction**

This program acts as Database Management System that helps users to build database structure, build tables, access data, define the data in database and manipulate that data and allows users to create and drop databases and tables. In this documentation we will provide the scope and context of the project, it also gives more details about how we work on this project and the value of that system. It also provides details about phases of implementing the project.

# **2) Purpose**

It is a collection of functions that enable the user to create and maintain a database. In other words, it is general-purpose software that provides the users with the processes of defining, constructing and manipulating the database.

# **3) Scope**

**First stage:**

* User will be able to create new DB
* User will be able Delete specific DB
* User will be able to list all available DBs
* User will be able Use specific DB

**Second stage:**

* User will be able to list all available Tables inside a DB
* User will be able create tables
* User will be able delete specific table
* User will be able show content of specific table
* User will be able to open a specific table

**Third stage:**

* User will be able to insert into a table
* User will be able to delete a record from a table
* User will be able to select specific record
* User will be able to update certain record

# **4) Technologies**

* OS: Linux Ubuntu
* Programing language: Bash Script

# **5) Functions**

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| --- | --- |
| Number | #1 |
| Function Name | createDB |
| Description | **I**n this function user will be able to create database which translated to directory on the system, all created databases will be inside DBMS directory. |
| Precondition | 1- Run the application  2- Choose create DB option  3- Check if user has DBMS directory or we need to create it.  4- Enter new DB valid name |
| Postcondition | If all preconditions passed successfully then new Database will be created else Error message will be displayed. |

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| --- | --- |
| Number | #2 |
| Function Name | dropDB |
| Description | **I**n this function user will be able to delete database with all its tables and data which translated to remove directory on the system. |
| Precondition | 1- Run the application  2- Choose drop DB option  3- Enter correct database name you want it to be removed |
| Postcondition | Selected database has been dropped successfully. |

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| Number | #3 |
| Function Name | listDB |
| Description | **I**n this function user will be able to display all databases which translated to list directories on the system. |
| Precondition | 1- Run the application  2- Choose list DB option |
| Postcondition | If we have already existed databases, they will be listed else “Empty directory” message will be displayed. |

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| --- | --- |
| Number | #4 |
| Function Name | selectDB |
| Description | **I**n this function user will be able to use selected database and make operations on its tables. |
| Precondition | 1- Run the application  2- Choose list DB option  3- Enter correct existed database name |
| Postcondition | If database name entered correctly and it is an already existed database then user will be able to make some operations on its tables throw table menu, else “Error” message will be displayed. |

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| --- | --- |
| Number | #5 |
| Function Name | createTable |
| Description | **I**n this function user will be able to create table which translated to file on the system. |
| Precondition | 1- Run the application  2- Open specific database  3- Choose create Table option from table menu  4- Enter new Table name  5- Enter number of table columns  6- give name to each column  7- Choose data type wither int or string for each column  8- Choose primary key column. |
| Postcondition | If all preconditions passed successfully then new table will be created else Error message will be displayed. |

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| --- | --- |
| Number | #6 |
| Function Name | listTable |
| Description | **I**n this function user will be able to display all available tables in specific database which translated to list files on the system. |
| Precondition | 1- Run the application  2- Open specific database  3- Choose list Table option from table menu  4- check if selected database contains tables to be listed or empty database |
| Postcondition | Available tables will be listed or empty message will be displayed in case of empty database. |

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| --- | --- |
| Number | #7 |
| Function Name | dropTable |
| Description | **I**n this function user will be able to delete table with all its data which translated to remove file on the system. |
| Precondition | 1- Run the application  2- Open specific database  3- Choose drop Table option from table menu  4- Enter correct table name you want to be removed |
| Postcondition | If we have existed table with mentioned name, then it will be removed else “Error” message will be displayed. |

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| --- | --- |
| Number | #8 |
| Function Name | showTable |
| Description | **I**n this function user will be able to display table content. |
| Precondition | 1- Run the application  2- Open specific database  3- Choose showTable option from table menu  4- Enter correct table name |
| Postcondition | If we have existed table with mentioned name, then all its data will be displayed else “Error” message will be displayed. |

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| --- | --- |
| Number | #9 |
| Function Name | insertRecord |
| Description | **I**n this function user will be able to insert new data in specific table. |
| Precondition | 1- Run the application  2- Open specific database  3- Open specific table  4- Choose insert from operations menu  5- Insert valid data in each column |
| Postcondition | If entered data is valid then data will be inserted successfully else Error message will be displayed. |

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| --- | --- |
| Number | #10 |
| Function Name | update |
| Description | **I**n this function user will be able to edit existed data in specific table. |
| Precondition | 1- Run the application  2- Open specific database  3- Open specific table  4- Choose update from operations menu  5- Enter new valid data |
| Postcondition | If entered data is valid then data will be updated successfully else Error message will be displayed. |

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| --- | --- |
| Number | #11 |
| Function Name | deleteFromTable |
| Description | **I**n this function user will be able to delete existed data in specific table. |
| Precondition | 1- Run the application  2- Open specific database  3- Open specific table  4- Choose delete from operations menu  5- Enter which column name you want delete from and cell value |
| Postcondition | If Precondition success then record will be deleted successfully else Error message will be displayed. |

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| Number | #12 |
| Function Name | selectRecord |
| Description | **I**n this function user will be able to view existed data in specific table. |
| Precondition | 1- Run the application  2- Open specific database  3- Open specific table  4- Choose selectRecord from operations menu  5- Enter row number |
| Postcondition | If record exists data will be displayed successfully. |

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| --- | --- |
| Number | #13 |
| Function Name | selectAllRecord |
| Description | **I**n this function user will be able to display all records in table. |
| Precondition | 1- Run the application  2- Open specific database  3- Open specific table  4- Choose select all record option from operation menu |
| Postcondition | If table has data, then all its data will be displayed else “Error” message will be displayed. |

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| --- | --- |
| Number | #14 |
| Function Name | mainMenu |
| Description | Menu display options of database stage (create, drop, open, list) |
| Precondition | Run application |
| Postcondition | Menu displayed |

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| --- | --- |
| Number | #15 |
| Function Name | tablesMenu |
| Description | Menu display options of table stage (create, delete, list, show content) |
| Precondition | 1- Run application  2- Open specific DB |
| Postcondition | Table menu displayed |

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| --- | --- |
| Number | #16 |
| Function Name | operationsMenu |
| Description | Menu display options of manipulation stage (insert, update, delete, select record) |
| Precondition | 1- Run application  2- Open specific DB  3- Open specific table |
| Postcondition | Operation menu displayed |

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| --- | --- |
| Number | #17 |
| Function Name | checkDir |
| Description | Check if user has DBMS directory to put new DB on it. |
| Precondition | 1-Run application |
| Postcondition | If user has DBMS directory nothing happens else DBMS directory will be created. |