**TASK A:**

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| **Test** | **Expected Results** | **Passed?** |
| **./querydb** | Welcome message is displayed, test database file ("computing.txt") is created, and the program exits with | Y |
| **./querydb -db invalid.txt** | "Please provide a database with -db <filename>" is displayed, and the program exits with | N |
| **./querydb -db computing.txt -showAll** | All records from the "computing.txt" database are displayed, and the program exits with | Y |
| **./querydb -db invalid.txt -showAll** | "Cannot open file invalid.txt" is displayed, and the program exits with | Y |
| **./querydb -db computing.txt -sid 12345** | The complete record for the student with ID 12345 is displayed, and the program exits with | Y |
| **./querydb -db computing.txt -sid 54321** | "No record with SID=54321 was found" is displayed, and the program exits with | Y |
| **./querydb -db computing.txt -sid abc** | "Please provide a student ID as an integer" is displayed, and the program exits with | N |
| **./querydb -db computing.txt -sid 12345 -n** | Only the name for the student with ID 12345 is displayed, and the program exits with | Y |
| **./querydb -db computing.txt -sid 12345 -g** | Only the module codes and grades for the student with ID 12345 are displayed, and the program exits with | Y |
| **./querydb -db computing.txt -sid 12345 -p** | Only the phone number for the student with ID 12345 is displayed, and the program exits with | Y |
| **./querydb -db computing.txt -sid 12345 -n -p** | Both the name and the phone number for the student with ID 12345 are displayed, and the program exits with | Y |
| **./querydb -db computing.txt -sid 54321 -n** | "No record with SID=54321 was found" is displayed, and the program exits with | Y |
| **./querydb -db computing.txt -sid 12345 -n -p -n** | "Error: Duplicate tag '-n' detected" is displayed, and the program exits with | N |

**TASK B:**

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| **Test** | **Expected Results** | **Passed?** |
| **./addrecord** | Welcome message is displayed, test database file ("computing.txt") is created, and the program exits with | Y |
| **./addrecord -db invalid.txt** | "Please provide a database with -db <filename>" is displayed, and the program exits with | Y |
| **./addrecord -db computing.txt** | Error message: "No action specified. Please provide arguments to add a record." is displayed, and the program exits with | N |
| **./addrecord -db computing.txt -sid 12345 -name "Sam Eold"** | A new record with the given information is added to the database ("computing.txt"), and the program exits with | Y |
| **./addrecord -db computing.txt -sid 12345 -name "Sam Eold" -phone 44-1234-456123** | A new record with the given information (including the phone number) is added to the database ("computing.txt"), and the program exits with | Y |
| **./addrecord -db computing.txt -sid 13579 -name "Les Sismore" -modulecodes COMP101 COMP110 COMP123 COMP145 COMP165** | A new record with the given information (including module codes) is added to the database ("computing.txt"), and the program exits with | Y |
| **./addrecord -db computing.txt -sid 24680 -name "Jo King" -modulecodes COMP101 COMP110 COMP123 COMP145 COMP165 -grades 40.5 55.6 35.7 67.5 80.1** | A new record with the given information (including grades) is added to the database ("computing.txt"), and the program exits with | Y |
| **./addrecord -db computing.txt -sid 12345 -name "Sam Eold" -phone 44 01234 456123** | Error message: "Phone number cannot contain spaces." is displayed, and the program exits with | N |
| **./addrecord -db computing.txt -sid a2345 -name "Sam Eold"** | Error message: "Please provide a valid student ID as an integer." is displayed, and the program exits with | N |
| **./addrecord -db computing.txt -sid 24680 -name "Jo King" -grades 40.5 55.6 35.7 67.5 80.1** | Error message: "Cannot provide grades without module codes." is displayed, and the program exits with | N |
| **./addrecord -db computing.txt -sid 24680 -name "Jo King" -modulecodes COMP101 COMP110 -grades 40.5 55.6 35.7** | Error message: "Number of module codes and grades do not match." is displayed, and the program exits with | N |

**TASK C:**

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| **Test** | **Expected Results** | **Passed?** |
| **./updaterecord -db invalid.txt** | "Please provide a database with -db <filename>" is displayed, and the program exits with | N |
| **./updaterecord -db computing.txt** | Error message: "No action specified. Please provide arguments to update a record." is displayed, and the program exits with | N |
| **./updaterecord -db computing.txt -sid 12345** | Error message: "No update parameters specified. Please provide valid update arguments." is displayed, and the program exits with | N |
| **./updaterecord -db computing.txt -sid 12345 -name "Sam Eold"** | The name for the record with student ID 12345 is updated, and the program exits with | Y |
| **./updaterecord -db computing.txt -sid 12345 -phone 00-12-34567** | The phone number for the record with student ID 12345 is updated, and the program exits with | Y |
| **./updaterecord -db computing.txt -sid 12345 -phone 00-12-34567 -name "Jo Kingly Blunte"** | Both the name and phone number for the record with student ID 12345 are updated, and the program exits with | Y |
| **./updaterecord -db computing.txt -sid 12345 -modulecode COMP1001 -grade 78.4** | The grade for module COMP1001 for the record with student ID 12345 is updated, and the program exits with | Y |
| **./updaterecord -db computing.txt -sid 12345 -modulecode COMP1001** | The student with ID 12345 is enrolled in module COMP1001, and the program exits with | Y |
| **./updaterecord -sid 12345** | Error message: "Please provide a database file with -db <filename>" is displayed, and the program exits with | Y |
| **./updaterecord -db computing.txt -sid 99999 -modulecode COMP1001 -grade 78.4** | Error message: "No record found with ID 99999. Update failed." is displayed, and the program exits with | N |
| **./updaterecord -db computing.txt -sid 12345 -grade 78.4** | Error message: "Please provide a module code with -modulecode <code> when updating grades." is displayed, and the program exits with | Y |
| **./updaterecord -db computing.txt -sid 12345 -phone 00 12 34567 -name "Jo Kingly Blunte"** | Error message: "Phone number cannot contain spaces." is displayed, and the program exits with | Y |
| **./updaterecord -db computing.txt -sid 12345 -phone 00-12-34567 -name** | Error message: "Please provide a valid name with -name <name> when updating." is displayed, and the program exits with | Y |
| **./updaterecord -db computing.txt -sid 12345 -phone 00-12-34567 -name "Sam"** | Error message: "Name must have at least 2 words separated by spaces." is displayed, and the program exits with | Y |

**TASK D:**

