Appendix I: SQL Code

In [ ]:
```
#SQL queries used to obtain data sets for analysis in chapters 8 and 9
#Data are moved to a table named mydb.photometricDat<x> (where <x> = 1, 2
↪  or 3)
#They are then manually downloaded into csv files

#A similar query is used in each case
#Data used in chapter 8 were loaded into a table named photmetricData1
#Training data used in chapter 9 were loaded into a table named
↪  photometricData2
#Test data used in chapter 9 were loaded into a table named
↪  photometricData3

#First obtain data for use in chapter 8
SELECT ObjID, SpecObjID, ra, dec, u, g, r, i, z
into Mydb.photometricData1
    from PhotoObj
    WHERE (calibStatus_u & 1) != 0
        AND (calibStatus_g & 1) != 0
        AND (calibstatus_r & 1) != 0
        AND (calibstatus_i & 1) != 0
        AND (calibstatus_z & 1) != 0
        AND psfmagerr_u < 0.5
        AND psfmagerr_g < 0.05
        AND psfmagerr_r < 0.05
        AND psfmagerr_i < 0.05
        AND psfmagerr_z < 0.05
        AND specObjID != 0
        AND Type = 6
        AND clean = 1
        AND htmid*37 & 0 x000000000000FFFF < (650 * 0.5)
        AND SpecObjID in (
            SELECT SpecObjID from SpecObjAll
            WHERE segueprimary = 1
            AND zwarning = 0
        );
```

```
#Next obtain training data for use in chapter 9 (training)
#Ensure it is not included in mydb.photometricData1

SELECT ObjID, SpecObjID, ra, dec, u, g, r, i, z
into Mydb.photometricData2
    from PhotoObj
    WHERE (calibStatus_u & 1) != 0
        AND (calibStatus_g & 1) != 0
        AND (calibstatus_r & 1) != 0
        AND (calibstatus_i & 1) != 0
        AND (calibstatus_z & 1) != 0
        AND psfmagerr_u < 0.5
        AND psfmagerr_g < 0.05
        AND psfmagerr_r < 0.05
        AND psfmagerr_i < 0.05
        AND psfmagerr_z < 0.05
        AND specObjID != 0
        AND Type = 6
        AND clean = 1
        AND htmid*37 & 0 x0000000000000FFFF < (650 * 0.5)
        AND SpecObjID in (
            SELECT SpecObjID from SpecObjAll
            WHERE segueprimary = 1
            AND zwarning = 0
        )
        AND SpecObjID not in (
            SELECT SpecObjID from mydb.photometricData1
        );
```

```
#Next obtain test data for use in chapter 9 (test)
#Ensure it is not included in mydb.photometricData1 or
↪  mydb.photometricData2
SELECT ObjID, SpecObjID, ra, dec, u, g, r, i, z
into Mydb.photometricData2
    from PhotoObj
    WHERE (calibStatus_u & 1) != 0
        AND (calibStatus_g & 1) != 0
        AND (calibstatus_r & 1) != 0
        AND (calibstatus_i & 1) != 0
        AND (calibstatus_z & 1) != 0
        AND psfmagerr_u < 0.5
        AND psfmagerr_g < 0.05
        AND psfmagerr_r < 0.05
        AND psfmagerr_i < 0.05
        AND psfmagerr_z < 0.05
        AND specObjID != 0
        AND Type = 6
        AND clean = 1
        AND htmid*37 & 0 x000000000000FFFF < (650 * 0.5)
        AND SpecObjID in (
            SELECT SpecObjID from SpecObjAll
            WHERE segueprimary = 1
            AND zwarning = 0
        )
        AND SpecObjID not in (
            SELECT SpecObjID from mydb.photometricData1
        )
        AND SpecObjID not in (
            SELECT SpecObjID from mydb.photometricData2
        );
```

```
In [ ]: #SQL queries used to select spectral metadata for stars used in chapter 8
        #A similar query is used in each case
        #Data relevant to chapter 8 were loaded into a table named
        ↪ spectralMetaData1
        #Data relevant to chapter 9 (training) were loaded into a table named
        ↪ spectralMetaData2
        #Data relevant to chapter 9 (test) were loaded into a table named
        ↪ spectralMetaData3

        SELECT SpecObjID, plate, mjd, fiberid into mydb.spectralMetaData1 from
        ↪ SpecObjAll
            WHERE
                SpecObjID in (
                    SELECT SpecObjID from mydb.photometricData1
                    );

        #SQL queries used to select photometric data for stars used in chapter 9
        ↪ (training data)
        SELECT SpecObjID, plate, mjd, fiberid into mydb.spectralMetaData2 from
        ↪ SpecObjAll
            WHERE
                SpecObjID in (
                    SELECT SpecObjID from mydb.photometricData2
                    );

        #SQL queries to select photometric data for stars used in chapter 9 (test
        ↪ data)
        SELECT SpecObjID, plate, mjd, fiberid into mydb.spectralMetaData3 from
        ↪ SpecObjAll
            WHERE
                SpecObjID in (
                    SELECT SpecObjID from mydb.photometricData3
                    );
```