Training Set:

------------- Lambda = 1e-05-------------

Analytic: 0/1 Loss = 0.10506000000000001, Square loss = 0.3848223593949477

Gradient Decent: 0/1 Loss = 0.15026, Square loss = 0.4770427522576504

Validation Set:

------------- Lambda = 1e-05-------------

Analytic: 0/1 Loss = 0.09620000000000001, Square loss = 0.3681495912984633

Gradient Decent: 0/1 Loss = 0.138, Square loss = 0.455714139091732

Training Set:

------------- Lambda = 0.0001-------------

Analytic: 0/1 Loss = 0.10534, Square loss = 0.3852902716901684

Gradient Decent: 0/1 Loss = 0.15026, Square loss = 0.4770489997987863

Validation Set:

------------- Lambda = 0.0001-------------

Analytic: 0/1 Loss = 0.09670000000000001, Square loss = 0.3680395483842602

Gradient Decent: 0/1 Loss = 0.138, Square loss = 0.45572133256623004

Training Set:

------------- Lambda = 0.001-------------

Analytic: 0/1 Loss = 0.10674000000000002, Square loss = 0.38702297617025144

Gradient Decent: 0/1 Loss = 0.15026, Square loss = 0.47711155190041343

Validation Set:

------------- Lambda = 0.001-------------

Analytic: 0/1 Loss = 0.09680000000000001, Square loss = 0.3673293410755911

Gradient Decent: 0/1 Loss = 0.13820000000000002, Square loss = 0.4557933419050195

Training Set:

------------- Lambda = 0.01-------------

Analytic: 0/1 Loss = 0.11402000000000001, Square loss = 0.3984509927523093

Gradient Decent: 0/1 Loss = 0.15038, Square loss = 0.4777446490293447

Validation Set:

------------- Lambda = 0.01-------------

Analytic: 0/1 Loss = 0.1037, Square loss = 0.3742663699065845

Gradient Decent: 0/1 Loss = 0.1383, Square loss = 0.4565208008240802

Training Set:

------------- Lambda = 0.1-------------

Analytic: 0/1 Loss = 0.13224000000000002, Square loss = 0.4384801661382786

Gradient Decent: 0/1 Loss = 0.15152000000000002, Square loss = 0.48474661759407917

Validation Set:

------------- Lambda = 0.1-------------

Analytic: 0/1 Loss = 0.1188, Square loss = 0.4144005145227963

Gradient Decent: 0/1 Loss = 0.1398, Square loss = 0.4644445220180887

Training Set:

------------- Lambda = 1-------------

Analytic: 0/1 Loss = 0.16038000000000002, Square loss = 0.5705970170330118

Gradient Decent: 0/1 Loss = 0.1615, Square loss = 0.5746047505802111

Validation Set:

------------- Lambda = 1-------------

Analytic: 0/1 Loss = 0.1516, Square loss = 0.5570021917188126

Gradient Decent: 0/1 Loss = 0.1526, Square loss = 0.5612373901061849

Training Set:

------------- Lambda = 10-------------

Analytic: 0/1 Loss = 0.19602000000000003, Square loss = 0.8678484668338203

Gradient Decent: 0/1 Loss = 0.19282000000000002, Square loss = 0.8678568706896871

Validation Set:

------------- Lambda = 10-------------

Analytic: 0/1 Loss = 0.19240000000000002, Square loss = 0.8656610325813602

Gradient Decent: 0/1 Loss = 0.1889, Square loss = 0.8656336480669078

Training Set:

------------- Lambda = 100-------------

Analytic: 0/1 Loss = 0.39388, Square loss = 0.9831052092037058

Gradient Decent: 0/1 Loss = 0.67034, Square loss = 4.608377068721547

Validation Set:

------------- Lambda = 100-------------

Analytic: 0/1 Loss = 0.3956, Square loss = 0.9830812896333874

Gradient Decent: 0/1 Loss = 0.6659, Square loss = 4.485072791010506

Best Lambda for analytic: 1e-05

Best Lambda for GD: 1e-05

Test Set:

------------- For the best Lambda found (different for each scheme) -------------

Analytic: Lambda = 1e-05, 0/1 Loss = 0.10590000000000001, Square loss = 0.3884744552245516

Gradient Decent: Lambda = 1e-05, 0/1 Loss = 0.1491, Square loss = 0.470738027690171



