Laboratory 9: Survival Analysis

Description of Data

‘SURVIVAL65.TXT’ is data from a study on multiple myeloma in which researchers treated 65 patients with alkylating agents. Of those patients, 48 died during the study and 17 survived. The goal of this study is to identify important prognostic factors.

- **TIME**: survival time in months from diagnosis
- **STATUS**: 1 = dead, 0 = alive (censored)
- **LOGBUN**: log blood urea nitrogen (BUN) at diagnosis
- **HGB**: hemoglobin at diagnosis
- **PLATELET**: platelets at diagnosis: 0 = abnormal, 1 = normal
- **AGE**: age at diagnosis in years
- **LOGWBC**: log WBC at diagnosis
- **FRACTURE**: fractures at diagnosis: 0 = none, 1 = present
- **LOGPBM**: log percentage of plasma cells in bone marrow
- **PROTEIN**: proteinuria at diagnosis
- **SALCIUM**: serum calcium at diagnosis

1. Using Kaplan Meier method to estimate the distribution of survival time for the total sample. What is the mean survival time and standard error? What is the median survival time and 95% CI? How many censored observations are there?

2. Using Kaplan Meier method to estimate whether fracture influences survival time. What is the median survival time and 95% CI in each group? Interpret the Log Rank test and the survival curves.

3. Run Cox model by using the stepwise selection process. Please report and interpret the final model.