Table 1: Comparative Analysis of Each Baseline Model for Treatment Prediction

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Model** | **Total Reward** | **Total Tumor Size Reduction** | **Total Tumor Count Reduction** | **Average Size Reduction per Patient** | **Average Count Reduction per Patient** | **Size MSE** | **Size MAE** | **Size R²** | **Count MSE** | **Count MAE** | **Count R²** |
| **Random Forest (RF)** | -3,55,220 | 163.02 | 502 | 0.55 | 1.71 | 0.05 | 0.03 | 0.87 | 0.16 | 0.11 | 0.94 |
| **KNN** | -3,57,360 | 144.4 | 527 | 0.49 | 1.79 | 0.05 | 0.04 | 0.77 | 0.24 | 0.15 | 0.89 |
| **Linear Regression** | -3,27,100 | 110.17 | 478 | 0.37 | 1.63 | 0.04 | 0.02 | 0.84 | 0.04 | 0.02 | 0.97 |
| **SVM Regression** | -3,36,200 | 99.68 | 330 | 0.34 | 1.12 | 0.05 | 0.02 | 0.75 | 0.08 | 0.04 | 0.95 |

Table 2: Comparison of Methods for Agent Formulation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Metric** | **Value Iteration** | **Monte Carlo** | **Q-learning** | **DQN** |
| Total Reward | -355220 | -355530 | -354770 | 63918.87 |
| Total Tumor Size Reduction | 163.02 | 160.86 | 162.46 | 41437.87 |
| Total Tumor Count Reduction | 502 | 465 | 451 | 22481 |