**Table S1.**The statistical description of features

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| --- | --- | --- |
| Variable | Value | Implication |
| Age | Continuous | Age at admission |
| BMI | Continuous | Body mass index |
| Diameter | Continuous | Diameter of the tumor (cm) |
| Ln metastasis | Continuous | Number of metastatic lymph nodes |
| Menopause |  | Menopausal status at admission |
| No | 0 |  |
| Yes | 1 |  |
| Side |  | Side of the tumor |
| Right | 0 |  |
| Left | 1 |  |
| Invasive |  | Tumor invasion status |
| In situ | 0 |  |
| Invasive | 1 |  |
| Multi |  | Whether the tumor is multiple or not |
| No | 0 |  |
| Yes | 1 |  |
| TNM |  | TNM staging |
| 0,1 | 1 |  |
| 2 | 2 |  |
| 3 | 3 |  |
| 4 | 4 |  |
| Ki\_67 |  | Status of Ki67(>20%,High) |
| Low | 0 |  |
| High | 1 |  |
| ER |  | Status of estrogen receptors |
| Negative | 0 |  |
| Positive | 1 |  |
| PR |  | Status of progesterone receptors |
| Negative | 0 |  |
| Positive | 1 |  |
| HER2 |  | Status of human epidermal growth factor receptor 2 |
| Negative | 0 |  |
| Positive | 1 |  |
| Breast surgery |  | Type of Breast surgery |
| Untreated | 0 |  |
| Breast conserving | 1 |  |
| Mastectomy | 2 |  |
| Axillary surgery |  | Type of Axillary surgery |
| Untreated | 0 |  |
| SLNB | 1 |  |
| ALND | 2 |  |
| SLNB+ALND | 3 |  |
| Rebuild surgery |  | Type of Rebuild surgery |
| Untreated | 0 |  |
| One-stage reconstruction | 1 |  |
| Two-stage reconstruction | 2 |  |
| Adjuvant chemotherapy |  | Adjuvant chemotherapy |
| No | 0 |  |
| Yes | 1 |  |
| Targeted therapy |  | Targeted therapy |
| No | 0 |  |
| Yes | 1 |  |
| Adjuvant radiotherapy |  | Adjuvant radiotherapy |
| No | 0 |  |
| Yes | 1 |  |
| Adjuvant endocrine therapy |  | Adjuvant endocrine therapy |
| No | 0 |  |
| Yes | 1 |  |
| Neoadjuvant therapy |  | Neoadjuvant therapy |
| No | 0 |  |
| Yes | 1 |  |