Mario Dataset – Combined Features

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **10%** | | | | **20%** | | | | **30%** | | | |
| **P** | **R** | **FM** | **K** | **P** | **R** | **FM** | **K** | **P** | **R** | **FM** | **K** |
| **J48** | 0.811 | 0.793 | 0.791 | 0.6674 | 0.77 | 0.76 | 0.759 | 0.6107 | 0.81 | 0.795 | 0.795 | 0.6686 |
| **RF** | 0.834 | 0.826 | 0.826 | 0.7192 | 0.817 | 0.808 | 0.808 | 0.6856 | 0.865 | 0.844 | 0.844 | 0.7484 |
| **KNN3** | 0.789 | 0.782 | 0.781 | 0.6494 | 0.765 | 0.755 | 0.754 | 0.5941 | 0.824 | 0.793 | 0.793 | 0.6666 |
| **KNN5** | 0.78 | 0.751 | 0.749 | 0.5982 | 0.734 | 0.718 | 0.717 | 0.5322 | 0.809 | 0.734 | 0.732 | 0.5716 |
| **KNN7** | 0.79 | 0.716 | 0.709 | 0.5464 | 0.722 | 0.705 | 0.703 | 0.5098 | 0.755 | 0.656 | 0.647 | 0.4483 |
| **NB** | 0.762 | 0.762 | 0.761 | 0.6176 | 0.785 | 0.771 | 0.77 | 0.6419 | 0.785 | 0.773 | 0.773 | 0.6436 |
| **BN** | 0.738 | 0.723 | 0.717 | 0.5401 | 0.775 | 0.771 | 0.771 | 0.6299 | 0.791 | 0.784 | 0.784 | 0.6536 |

Mario Dataset – Mario Features

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **10%** | | | | **20%** | | | | **30%** | | | |
| **P** | **R** | **FM** | **K** | **P** | **R** | **FM** | **K** | **P** | **R** | **FM** | **K** |
| **J48** | 0.809 | 0.797 | 0.794 | 0.6727 | 0.755 | 0.738 | 0.737 | 0.5749 | 0.817 | 0.804 | 0.804 | 0.6848 |
| **RF** | 0.812 | 0.806 | 0.805 | 0.6864 | 0.761 | 0.751 | 0.752 | 0.5932 | 0.857 | 0.846 | 0.847 | 0.7533 |
| **KNN3** | 0.781 | 0.769 | 0.769 | 0.63 | 0.708 | 0.705 | 0.704 | 0.5176 | 0.798 | 0.778 | 0.778 | 0.6457 |
| **KNN5** | 0.786 | 0.769 | 0.766 | 0.6253 | 0.721 | 0.705 | 0.706 | 0.51 | 0.813 | 0.78 | 0.78 | 0.6475 |
| **KNN7** | 0.784 | 0.767 | 0.765 | 0.6209 | 0.694 | 0.676 | 0.673 | 0.4574 | 0.803 | 0.764 | 0.762 | 0.6203 |
| **NB** | 0.719 | 0.72 | 0.719 | 0.5463 | 0.739 | 0.729 | 0.728 | 0.5718 | 0.758 | 0.741 | 0.742 | 0.5923 |
| **BN** | 0.71 | 0.689 | 0.678 | 0.4751 | 0.722 | 0.698 | 0.69 | 0.4878 | 0.776 | 0.765 | 0.764 | 0.6179 |

Mario Dataset – Ruby Features

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **10%** | | | | **20%** | | | | **30%** | | | |
| **P** | **R** | **FM** | **K** | **P** | **R** | **FM** | **K** | **P** | **R** | **FM** | **K** |
| **J48** | 0.717 | 0.718 | 0.712 | 0.532 | 0.762 | 0.756 | 0.757 | 0.6072 | 0.795 | 0.786 | 0.785 | 0.6568 |
| **RF** | 0.735 | 0.74 | 0.735 | 0.5756 | 0.766 | 0.766 | 0.765 | 0.6232 | 0.819 | 0.813 | 0.813 | 0.6994 |
| **KNN3** | 0.7 | 0.694 | 0.695 | 0.5048 | 0.745 | 0.744 | 0.743 | 0.5864 | 0.781 | 0.78 | 0.78 | 0.645 |
| **KNN5** | 0.691 | 0.683 | 0.685 | 0.4852 | 0.739 | 0.734 | 0.735 | 0.5694 | 0.769 | 0.764 | 0.763 | 0.6124 |
| **KNN7** | 0.691 | 0.683 | 0.685 | 0.4852 | 0.746 | 0.734 | 0.735 | 0.5668 | 0.787 | 0.782 | 0.782 | 0.6437 |
| **NB** | 0.702 | 0.712 | 0.702 | 0.5267 | 0.769 | 0.756 | 0.756 | 0.6136 | 0.767 | 0.755 | 0.755 | 0.61 |
| **BN** | 0.629 | 0.668 | 0.641 | 0.4275 | 0.741 | 0.736 | 0.735 | 0.5704 | 0.757 | 0.749 | 0.748 | 0.5955 |

Ruby Dataset – Combined Features

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **10%** | | | | **20%** | | | | **30%** | | | |
| **P** | **R** | **FM** | **K** | **P** | **R** | **FM** | **K** | **P** | **R** | **FM** | **K** |
| **J48** | 0.911 | 0.915 | 0.911 | 0.8554 | 0.911 | 0.911 | 0.907 | 0.8491 | 0.911 | 0.914 | 0.91 | 0.8535 |
| **RF** | 0.926 | 0.93 | 0.928 | 0.883 | 0.933 | 0.933 | 0.932 | 0.8874 | 0.939 | 0.938 | 0.937 | 0.8958 |
| **KNN3** | 0.91 | 0.914 | 0.911 | 0.8538 | 0.901 | 0.905 | 0.902 | 0.8391 | 0.913 | 0.909 | 0.906 | 0.8452 |
| **KNN5** | 0.893 | 0.894 | 0.891 | 0.8198 | 0.879 | 0.876 | 0.87 | 0.7875 | 0.892 | 0.873 | 0.869 | 0.7836 |
| **KNN7** | 0.867 | 0.864 | 0.856 | 0.7645 | 0.856 | 0.844 | 0.833 | 0.7295 | 0.866 | 0.836 | 0.825 | 0.7175 |
| **NB** | 0.894 | 0.894 | 0.893 | 0.8203 | 0.896 | 0.893 | 0.894 | 0.8225 | 0.921 | 0.916 | 0.917 | 0.8614 |
| **BN** | 0.874 | 0.879 | 0.875 | 0.7942 | 0.865 | 0.87 | 0.867 | 0.7801 | 0.895 | 0.899 | 0.897 | 0.8308 |

Ruby Dataset – Mario Features

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **10%** | | | | **20%** | | | | **30%** | | | |
| **P** | **R** | **FM** | **K** | **P** | **R** | **FM** | **K** | **P** | **R** | **FM** | **K** |
| **J48** | 0.868 | 0.882 | 0.875 | 0.8018 | 0.911 | 0.911 | 0.907 | 0.8491 | 0.893 | 0.898 | 0.895 | 0.8283 |
| **RF** | 0.887 | 0.899 | 0.893 | 0.8307 | 0.933 | 0.933 | 0.932 | 0.8874 | 0.922 | 0.923 | 0.922 | 0.87 |
| **KNN3** | 0.884 | 0.89 | 0.885 | 0.8139 | 0.901 | 0.905 | 0.902 | 0.8391 | 0.891 | 0.895 | 0.893 | 0.8244 |
| **KNN5** | 0.884 | 0.887 | 0.881 | 0.8088 | 0.884 | 0.887 | 0.882 | 0.8069 | 0.878 | 0.883 | 0.88 | 0.8023 |
| **KNN7** | 0.862 | 0.864 | 0.859 | 0.7716 | 0.866 | 0.864 | 0.856 | 0.7659 | 0.862 | 0.867 | 0.863 | 0.7755 |
| **NB** | 0.847 | 0.854 | 0.849 | 0.751 | 0.896 | 0.893 | 0.894 | 0.8225 | 0.879 | 0.876 | 0.877 | 0.7944 |
| **BN** | 0.829 | 0.832 | 0.822 | 0.7072 | 0.865 | 0.87 | 0.867 | 0.7801 | 0.856 | 0.856 | 0.855 | 0.7601 |

Ruby Dataset – Ruby Features

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **10%** | | | | **20%** | | | | **30%** | | | |
| **P** | **R** | **FM** | **K** | **P** | **R** | **FM** | **K** | **P** | **R** | **FM** | **K** |
| **J48** | 0.889 | 0.885 | 0.883 | 0.8045 | 0.914 | 0.914 | 0.913 | 0.8527 | 0.912 | 0.916 | 0.913 | 0.8577 |
| **RF** | 0.909 | 0.911 | 0.909 | 0.8514 | 0.933 | 0.933 | 0.933 | 0.8862 | 0.936 | 0.939 | 0.936 | 0.8975 |
| **KNN3** | 0.879 | 0.88 | 0.878 | 0.7984 | 0.918 | 0.917 | 0.916 | 0.8572 | 0.91 | 0.906 | 0.902 | 0.8398 |
| **KNN5** | 0.862 | 0.864 | 0.861 | 0.7699 | 0.907 | 0.904 | 0.902 | 0.8343 | 0.898 | 0.889 | 0.885 | 0.8102 |
| **KNN7** | 0.86 | 0.862 | 0.857 | 0.7643 | 0.888 | 0.888 | 0.884 | 0.8057 | 0.864 | 0.853 | 0.844 | 0.7461 |
| **NB** | 0.86 | 0.859 | 0.857 | 0.7587 | 0.876 | 0.868 | 0.87 | 0.7807 | 0.91 | 0.908 | 0.908 | 0.8474 |
| **BN** | 0.846 | 0.85 | 0.846 | 0.7436 | 0.887 | 0.887 | 0.887 | 0.8082 | 0.879 | 0.884 | 0.881 | 0.8034 |

Balance Dataset - Mario

Features 111 – 27 each category

Instances 235

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Mario Dataset** | | | |
| **P** | **R** | **FM** | **K** |
| **J48** | 0.642 | 0.626 | 0.631 | 0.5319 |
| **RF** | 0.714 | 0.706 | 0.709 | 0.633 |
| **KNN3** | 0.685 | 0.634 | 0.65 | 0.5426 |
| **KNN5** | 0.676 | 0.621 | 0.637 | 0.5266 |
| **KNN7** | 0.663 | 0.6 | 0.618 | 0.5 |
| **NB** | 0.698 | 0.651 | 0.669 | 0.5638 |
| **BN** | 0.587 | 0.54 | 0.551 | 0.4255 |