

**1 The classification accuracy (%) in the other datasets based on  $\alpha$  depended degree.**

(The best classification accuracy achieved among the different classifiers under the identical  $\alpha$  value and gene number is shown in boldface.)

**CNS Tumor:**

$\alpha$	Gene number	NB	DT	SVM	$k$ -NN
100	100	65	71.67	<b>81.67</b>	70
	50	65	76.67	<b>81.67</b>	75
	20	81.67	85	<b>91.67</b>	75
	10	83.33	<b>85</b>	78.33	80
	5	81.67	<b>85</b>	63.33	73.33
	2	75	<b>80</b>	65	63.33
	1	<b>68.33</b>	31.67	65	58.33
95	100	71.67	71.67	<b>78.33</b>	65
	50	70	76.67	<b>85</b>	73.33
	20	78.33	80	<b>88.33</b>	75
	10	80	<b>81.67</b>	<b>81.67</b>	<b>81.67</b>
	5	76.67	76.67	65	<b>85</b>
	2	71.67	75	65	<b>76.67</b>
	1	58.33	<b>71.67</b>	65	66.67
90	100	70	66.67	<b>76.67</b>	66.67
	50	73.33	70	<b>86.67</b>	78.33
	20	76.67	73.33	<b>83.33</b>	80
	10	75	76.67	71.67	<b>85</b>
	5	70	73.33	65	<b>78.33</b>
	2	68.33	61.67	65	<b>75</b>
	1	61.67	<b>71.67</b>	65	68.33
85	100	75	63.33	<b>86.67</b>	68.33
	50	76.67	68.33	<b>88.33</b>	78.33
	20	76.67	68.33	<b>80</b>	78.33
	10	<b>75</b>	70	71.67	73.33
	5	70	66.67	63.33	<b>78.33</b>
	2	65	58.33	65	<b>71.67</b>
	1	65	65	65	<b>78.33</b>
80	100	75	63.33	<b>90</b>	73.33

	50	75	73.33	<b>90</b>	78.33
	20	<b>76.67</b>	71.67	<b>76.67</b>	75
	10	<b>81.67</b>	71.67	73.33	<b>81.67</b>
	5	71.67	<b>83.33</b>	65	76.67
	2	65	75	65	<b>80</b>
	1	56.67	81.67	65	<b>83.33</b>
75	100	75	61.67	<b>88.33</b>	73.33
	50	75	70	<b>88.33</b>	75
	20	75	65	75	<b>78.33</b>
	10	68.33	71.67	<b>75</b>	<b>75</b>
	5	73.33	75	65	<b>81.67</b>
	2	65	<b>81.67</b>	65	76.67
	1	70	<b>75</b>	65	<b>75</b>
70	100	75	66.67	<b>88.33</b>	73.33
	50	71.67	68.33	<b>78.33</b>	<b>78.33</b>
	20	61.67	<b>76.67</b>	75	73.33
	10	60	<b>76.67</b>	65	<b>76.67</b>
	5	60	<b>71.67</b>	65	<b>71.67</b>
	2	65	65	65	<b>68.33</b>
	1	53.33	<b>73.33</b>	65	63.33

**DLBCL:**

$\alpha$	Gene number	NB	DT	SVM	$k$ -NN
100	100	<b>74.14</b>	63.79	72.41	63.79
	50	<b>84.48</b>	70.69	81.03	70.69
	20	77.59	77.59	<b>81.03</b>	<b>81.03</b>
	10	<b>74.14</b>	67.24	72.41	62.07
	5	<b>65.52</b>	63.79	50	56.90
	2	62.07	<b>72.41</b>	53.45	65.52
	1	70.69	70.69	55.17	<b>75.86</b>
95	100	<b>74.14</b>	63.79	72.41	63.79
	50	<b>84.48</b>	70.69	81.03	70.69
	20	77.59	77.59	<b>81.03</b>	<b>81.03</b>
	10	<b>74.14</b>	67.24	72.41	62.07
	5	<b>65.52</b>	63.79	50	56.90

	2	62.07	<b>72.41</b>	53.45	65.52
	1	70.69	70.69	55.17	<b>75.86</b>
90	100	<b>75.86</b>	60.34	<b>75.86</b>	72.41
	50	<b>81.03</b>	63.79	<b>81.03</b>	<b>81.03</b>
	20	<b>82.76</b>	72.41	75.86	75.86
	10	77.59	60.34	<b>79.31</b>	74.14
	5	60.34	58.62	<b>77.59</b>	72.41
	2	62.07	<b>74.14</b>	58.62	56.90
	1	70.69	70.69	55.17	<b>75.86</b>
85	100	<b>75.86</b>	48.28	<b>75.86</b>	72.41
	50	<b>82.76</b>	53.45	81.03	79.31
	20	81.03	53.45	79.31	<b>82.76</b>
	10	<b>77.59</b>	60.34	72.41	65.52
	5	<b>70.69</b>	60.34	55.17	65.52
	2	67.24	<b>75.86</b>	53.45	72.41
	1	67.24	<b>79.31</b>	55.17	70.69
80	100	<b>79.31</b>	53.45	72.41	72.41
	50	79.31	56.90	<b>84.48</b>	<b>84.48</b>
	20	77.59	60.34	<b>81.03</b>	79.31
	10	62.07	<b>65.52</b>	<b>65.52</b>	63.79
	5	67.24	<b>79.31</b>	65.52	62.07
	2	63.79	63.79	58.62	<b>74.14</b>
	1	63.79	55.17	<b>72.41</b>	67.24
75	100	<b>79.31</b>	53.45	72.41	72.41
	50	77.59	58.62	<b>81.03</b>	79.31
	20	77.59	58.62	<b>81.03</b>	79.31
	10	67.24	55.17	<b>70.69</b>	56.90
	5	67.24	63.79	65.52	<b>70.69</b>
	2	67.24	<b>72.41</b>	53.45	67.24
	1	58.62	<b>75.86</b>	55.17	<b>75.86</b>
70	100	<b>79.31</b>	53.45	72.41	72.41
	50	77.59	58.62	<b>81.03</b>	79.31
	20	77.59	58.62	<b>81.03</b>	79.31
	10	67.24	67.24	75.86	<b>77.59</b>
	5	65.52	<b>84.48</b>	58.62	72.41

	2	58.62	67.24	55.17	<b>77.59</b>
	1	55.17	<b>74.14</b>	55.17	70.69

**Leukemia 1:**

$\alpha$	Gene number	NB	DT	SVM	$k$ -NN
100	100	<b>100</b>	87.5	94.44	97.22
	50	<b>98.61</b>	94.44	97.22	95.83
	20	<b>97.22</b>	95.83	93.06	95.83
	10	<b>95.83</b>	93.06	94.44	94.44
	5	<b>94.44</b>	93.06	93.06	93.06
	2	87.5	87.5	90.28	<b>91.67</b>
	1	83.33	<b>86.11</b>	80.56	81.94
95	100	<b>98.61</b>	80.56	97.22	97.22
	50	<b>98.61</b>	81.94	95.83	95.83
	20	<b>97.22</b>	81.94	<b>97.22</b>	93.06
	10	<b>95.83</b>	84.72	<b>95.83</b>	94.44
	5	<b>98.61</b>	87.5	93.06	97.22
	2	94.44	<b>95.83</b>	83.33	<b>95.83</b>
	1	91.67	<b>93.06</b>	81.94	<b>93.06</b>
90	100	<b>98.61</b>	80.56	<b>98.61</b>	97.22
	50	95.83	80.56	<b>98.61</b>	95.83
	20	95.83	86.11	<b>97.22</b>	<b>97.22</b>
	10	<b>97.22</b>	86.11	93.06	95.83
	5	<b>95.83</b>	91.67	91.67	94.44
	2	<b>97.22</b>	87.5	86.11	95.83
	1	91.67	<b>93.06</b>	76.39	<b>93.06</b>
85	100	95.83	80.56	97.22	<b>98.61</b>
	50	95.83	81.94	97.22	<b>98.61</b>
	20	<b>95.83</b>	83.33	93.06	94.44
	10	<b>97.22</b>	87.5	93.06	94.44
	5	<b>98.61</b>	86.11	90.28	95.83
	2	91.67	<b>93.06</b>	75	91.67
	1	91.67	<b>93.06</b>	76.39	<b>93.06</b>
80	100	95.83	81.94	95.83	<b>97.22</b>
	50	95.83	80.56	<b>97.22</b>	93.06

	20	<b>95.83</b>	87.5	<b>95.83</b>	94.44
	10	91.67	91.67	<b>95.83</b>	91.67
	5	88.89	<b>91.67</b>	84.72	83.33
	2	<b>81.94</b>	73.61	76.39	79.17
	1	77.78	<b>81.94</b>	72.22	79.17
75	100	94.44	86.11	<b>95.83</b>	91.67
	50	<b>94.44</b>	87.5	93.06	90.28
	20	88.89	81.94	<b>93.06</b>	87.5
	10	<b>84.72</b>	<b>84.72</b>	<b>84.72</b>	83.33
	5	<b>84.72</b>	79.17	77.78	73.61
	2	79.17	<b>80.56</b>	73.61	77.78
	1	72.22	<b>73.61</b>	65.28	72.22
70	100	95.83	93.06	<b>98.61</b>	88.89
	50	97.22	93.06	<b>98.61</b>	91.67
	20	<b>90.28</b>	80.56	87.5	87.5
	10	<b>81.94</b>	77.78	80.56	79.17
	5	76.39	76.39	<b>77.78</b>	76.39
	2	70.83	<b>73.61</b>	65.28	<b>73.61</b>
	1	72.22	<b>73.61</b>	65.28	72.22

**Lung Cancer:**

$\alpha$	Gene number	NB	DT	SVM	$k$ -NN
100	100	<b>99.45</b>	96.69	<b>99.45</b>	98.34
	50	98.90	96.13	<b>99.45</b>	<b>99.45</b>
	20	<b>99.45</b>	96.69	98.90	98.90
	10	98.34	97.79	<b>99.45</b>	98.90
	5	<b>98.90</b>	92.82	97.24	97.79
	2	<b>95.58</b>	93.37	82.87	94.48
	1	92.82	92.82	82.87	<b>93.37</b>
95	100	<b>100</b>	97.24	99.45	98.90
	50	<b>100</b>	97.24	98.90	98.34
	20	<b>99.45</b>	97.79	98.90	98.34
	10	<b>99.45</b>	96.13	98.90	98.90
	5	<b>99.45</b>	96.69	97.79	97.79
	2	<b>97.79</b>	96.69	93.92	<b>97.79</b>

	1	<b>97.24</b>	96.69	86.74	96.69
90	100	98.34	97.79	<b>98.90</b>	98.34
	50	96.69	98.35	<b>98.90</b>	97.79
	20	<b>98.90</b>	91.71	98.34	98.34
	10	97.79	96.13	<b>98.34</b>	97.24
	5	<b>98.34</b>	97.24	97.24	97.79
	2	97.24	97.24	90.06	<b>97.79</b>
	1	91.16	<b>91.71</b>	84.53	88.95
85	100	95.58	95.58	<b>96.69</b>	91.71
	50	<b>96.13</b>	93.37	95.03	90.61
	20	92.27	<b>94.48</b>	88.40	88.40
	10	<b>88.40</b>	82.87	86.74	84.53
	5	<b>86.74</b>	85.64	82.87	85.08
	2	83.43	83.43	82.87	<b>84.53</b>
	1	81.77	<b>83.98</b>	82.87	82.32
80	100	86.19	80.11	<b>92.27</b>	85.64
	50	85.64	79.01	<b>87.85</b>	83.98
	20	85.64	79.01	<b>87.85</b>	83.98
	10	79.01	80.11	<b>82.87</b>	81.77
	5	80.66	80.66	82.87	<b>83.98</b>
	2	82.32	80.66	82.87	<b>83.43</b>
	1	<b>83.43</b>	82.87	82.87	80.66
75	100	89.50	89.50	<b>94.48</b>	87.29
	50	88.95	85.64	<b>90.06</b>	87.29
	20	85.64	79.01	<b>87.85</b>	83.98
	10	79.01	80.11	<b>82.87</b>	81.77
	5	80.66	80.66	82.87	<b>83.98</b>
	2	82.32	80.66	82.87	<b>83.43</b>
	1	<b>83.43</b>	82.87	82.87	80.66
70	100	90.6077	<b>96.13</b>	95.58	88.95
	50	91.1602	89.50	<b>93.92</b>	87.29
	20	77.9006	81.77	<b>83.98</b>	80.66
	10	80.1105	<b>82.32</b>	<b>82.32</b>	81.22
	5	80.663	80.66	82.87	<b>83.98</b>
	2	82.3204	80.66	82.87	<b>83.43</b>

	1	<b>83.4254</b>	82.87	82.87	80.66
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**Prostate Cancer:**

$\alpha$	Gene number	NB	DT	SVM	k-NN
100	100	90.20	88.24	<b>93.14</b>	91.18
	50	91.18	87.25	<b>94.12</b>	91.18
	20	90.20	88.24	<b>94.12</b>	89.22
	10	91.18	90.20	<b>94.12</b>	90.20
	5	91.18	90.20	<b>92.16</b>	89.22
	2	88.24	<b>92.16</b>	86.27	90.20
	1	84.31	<b>88.24</b>	82.35	87.25
95	100	91.18	89.22	<b>94.12</b>	91.18
	50	92.16	92.16	<b>98.04</b>	92.16
	20	95.10	91.18	<b>96.08</b>	94.12
	10	<b>95.10</b>	90.20	<b>95.10</b>	92.16
	5	92.16	88.24	92.16	<b>94.12</b>
	2	<b>92.16</b>	89.22	90.20	91.18
	1	84.31	<b>88.24</b>	82.35	87.25
90	100	93.14	88.24	92.16	<b>94.14</b>
	50	<b>94.12</b>	89.22	93.14	93.14
	20	94.12	86.27	<b>95.10</b>	93.14
	10	<b>94.12</b>	85.29	<b>94.12</b>	91.18
	5	92.16	85.29	<b>93.14</b>	<b>93.14</b>
	2	<b>90.20</b>	88.24	<b>90.20</b>	88.23
	1	84.31	<b>88.24</b>	82.35	87.25
85	100	91.18	93.14	<b>96.08</b>	94.11
	50	91.18	79.41	<b>94.12</b>	93.14
	20	92.16	84.31	<b>93.14</b>	<b>93.14</b>
	10	91.18	85.29	<b>92.16</b>	<b>92.16</b>
	5	<b>92.16</b>	87.25	90.20	91.18
	2	<b>92.16</b>	89.22	90.20	91.18
	1	87.25	<b>89.22</b>	68.63	86.27
80	100	91.18	87.25	<b>94.12</b>	92.16
	50	89.22	85.29	<b>93.14</b>	92.16
	20	92.16	91.18	<b>95.10</b>	94.12

	10	89.22	86.27	<b>91.18</b>	88.24
	5	85.29	79.41	79.41	<b>89.22</b>
	2	78.43	79.41	65.69	<b>81.37</b>
	1	74.51	<b>80.39</b>	64.71	72.55
75	100	91.18	82.35	91.18	<b>93.14</b>
	50	88.24	83.33	91.18	<b>92.16</b>
	20	<b>89.22</b>	80.39	<b>89.22</b>	<b>89.22</b>
	10	89.22	78.43	88.24	<b>90.20</b>
	5	<b>86.27</b>	80.39	82.35	81.37
	2	80.39	<b>84.31</b>	80.39	81.37
	1	78.43	80.39	78.43	<b>81.37</b>
70	100	89.22	82.35	<b>92.16</b>	<b>92.16</b>
	50	86.27	77.45	<b>92.16</b>	88.24
	20	84.31	85.29	<b>88.24</b>	86.27
	10	78.43	<b>84.31</b>	81.37	<b>84.31</b>
	5	78.43	86.27	80.39	<b>87.25</b>
	2	76.47	<b>82.35</b>	75.49	72.55
	1	78.43	80.39	78.43	<b>81.37</b>

**Breast Cancer:**

$\alpha$	Gene number	NB	DT	SVM	$k$ -NN
100	100	57.69	74.36	65.38	73.08
	50	56.41	<b>82.05</b>	73.08	75.64
	20	56.41	<b>79.49</b>	76.92	73.08
	10	57.69	<b>85.90</b>	73.08	70.51
	5	57.69	<b>79.49</b>	65.38	66.67
	2	56.41	<b>76.92</b>	57.69	71.79
	1	55.13	<b>65.38</b>	56.41	62.82
95	100	57.69	64.10	66.67	<b>74.36</b>
	50	55.13	60.26	<b>78.21</b>	75.64
	20	55.13	73.08	64.10	<b>75.64</b>
	10	56.41	<b>83.33</b>	65.39	76.92
	5	56.41	<b>84.62</b>	53.85	64.10
	2	56.41	<b>76.92</b>	56.41	67.95
	1	56.41	42.31	57.69	<b>78.21</b>



90	100	57.69	62.82	66.67	<b>71.79</b>
	50	57.69	65.39	73.08	<b>76.92</b>
	20	57.69	<b>79.49</b>	70.51	75.64
	10	58.97	<b>82.05</b>	62.82	73.08
	5	60.26	<b>82.05</b>	71.79	79.49
	2	56.41	<b>74.36</b>	56.41	65.38
	1	66.67	<b>74.36</b>	55.13	70.51
85	100	57.69	<b>76.92</b>	65.38	69.23
	50	56.41	<b>85.90</b>	73.08	71.79
	20	58.97	<b>80.77</b>	75.64	78.21
	10	62.82	79.49	75.64	<b>84.62</b>
	5	66.67	<b>84.62</b>	66.67	78.21
	2	56.41	<b>74.36</b>	56.41	65.38
	1	66.67	<b>74.36</b>	55.13	70.51
80	100	55.13	71.79	74.36	<b>75.64</b>
	50	56.41	<b>78.21</b>	76.92	<b>78.21</b>
	20	57.69	<b>78.21</b>	74.36	75.64
	10	58.97	<b>85.90</b>	73.08	71.79
	5	60.26	<b>75.64</b>	74.36	71.79
	2	57.69	76.92	57.69	<b>82.05</b>
	1	56.41	71.79	57.69	<b>76.92</b>
75	100	55.13	66.67	75.64	<b>76.92</b>
	50	55.13	55.13	78.21	<b>83.33</b>
	20	61.54	71.79	71.79	<b>75.64</b>
	10	61.54	65.38	76.92	<b>78.21</b>
	5	64.10	65.38	<b>79.49</b>	75.64
	2	73.08	<b>79.49</b>	66.67	70.51
	1	71.79	<b>73.08</b>	65.38	71.79
70	100	57.69	66.67	79.49	<b>80.77</b>
	50	64.10	64.10	76.92	<b>80.77</b>
	20	69.23	51.28	67.95	<b>75.64</b>
	10	67.95	58.97	71.79	<b>78.21</b>
	5	<b>71.79</b>	53.85	<b>71.79</b>	70.51
	2	<b>69.23</b>	58.97	67.95	60.26
	1	<b>71.79</b>	<b>71.79</b>	69.23	<b>71.79</b>

Leukemia 2:

$\alpha$	Gene number	NB	DT	SVM	k-NN
100	100	91.23	78.95	<b>94.74</b>	89.47
	50	<b>96.49</b>	80.70	<b>96.49</b>	91.23
	20	<b>96.49</b>	82.46	<b>96.49</b>	94.74
	10	<b>94.74</b>	87.72	89.47	87.72
	5	<b>89.47</b>	84.21	82.46	85.96
	2	82.46	82.46	61.40	<b>84.21</b>
	1	82.46	<b>85.96</b>	61.40	<b>85.96</b>
95	100	92.98	75.44	<b>94.74</b>	92.98
	50	94.74	77.19	<b>96.49</b>	91.23
	20	92.98	80.70	<b>96.49</b>	92.98
	10	94.74	80.70	<b>96.49</b>	92.98
	5	<b>89.47</b>	84.21	82.46	85.96
	2	82.46	82.46	61.40	<b>84.21</b>
	1	82.46	<b>85.96</b>	61.40	<b>85.96</b>
90	100	94.74	73.68	<b>96.49</b>	91.23
	50	<b>94.74</b>	80.70	<b>94.74</b>	84.21
	20	<b>98.25</b>	84.21	96.49	85.96
	10	<b>94.74</b>	89.47	80.70	85.96
	5	<b>94.74</b>	89.47	70.18	<b>94.74</b>
	2	84.21	78.95	68.42	<b>85.96</b>
	1	85.97	<b>89.47</b>	52.63	85.96
85	100	89.47	85.97	<b>94.74</b>	91.23
	50	<b>92.98</b>	78.95	<b>92.98</b>	91.23
	20	<b>94.74</b>	71.93	89.47	85.96
	10	<b>84.21</b>	80.70	82.46	82.46
	5	<b>82.46</b>	<b>82.46</b>	<b>82.46</b>	78.95
	2	80.70	<b>89.47</b>	63.16	84.21
	1	85.96	<b>89.47</b>	52.63	85.96
80	100	<b>96.49</b>	70.18	<b>96.49</b>	91.23
	50	<b>96.49</b>	80.70	91.23	89.47
	20	<b>91.23</b>	80.70	84.21	84.21
	10	84.21	78.95	84.21	<b>87.72</b>

	5	85.96	78.95	82.46	<b>91.23</b>
	2	85.96	<b>89.47</b>	75.44	85.96
	1	85.96	<b>89.47</b>	52.63	85.96
75	100	<b>94.74</b>	75.44	<b>94.74</b>	87.72
	50	<b>94.74</b>	82.46	87.72	89.47
	20	<b>94.74</b>	82.46	92.98	91.23
	10	<b>91.23</b>	80.70	87.72	89.47
	5	<b>92.98</b>	73.68	85.96	89.47
	2	84.21	84.21	56.14	<b>91.23</b>
	1	64.91	<b>77.19</b>	35.09	<b>77.19</b>
70	100	<b>92.98</b>	82.46	<b>92.98</b>	84.21
	50	<b>94.74</b>	82.46	91.23	89.47
	20	<b>96.49</b>	77.19	91.23	91.23
	10	<b>91.23</b>	73.68	85.96	<b>91.23</b>
	5	<b>84.21</b>	73.68	82.46	<b>84.21</b>
	2	64.91	<b>75.44</b>	47.37	<b>75.44</b>
	1	57.89	<b>66.67</b>	42.11	56.14

2 Average classification accuracy for different  $\alpha$  values in the other seven datasets.

Fig. S1

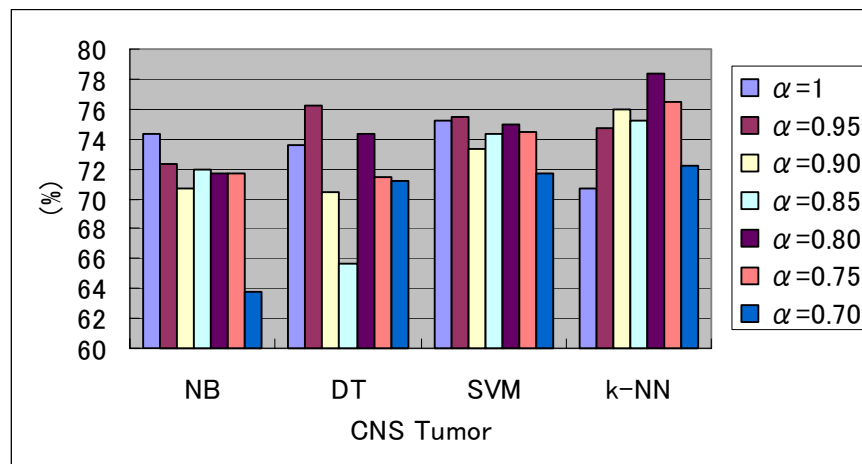


Fig. S2

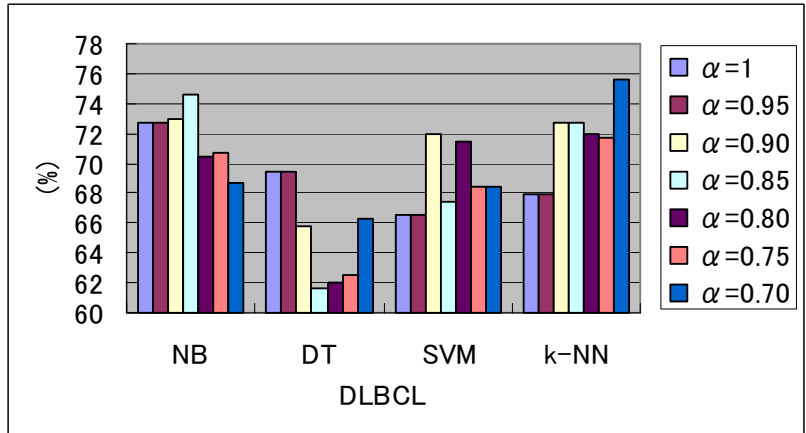


Fig. S3

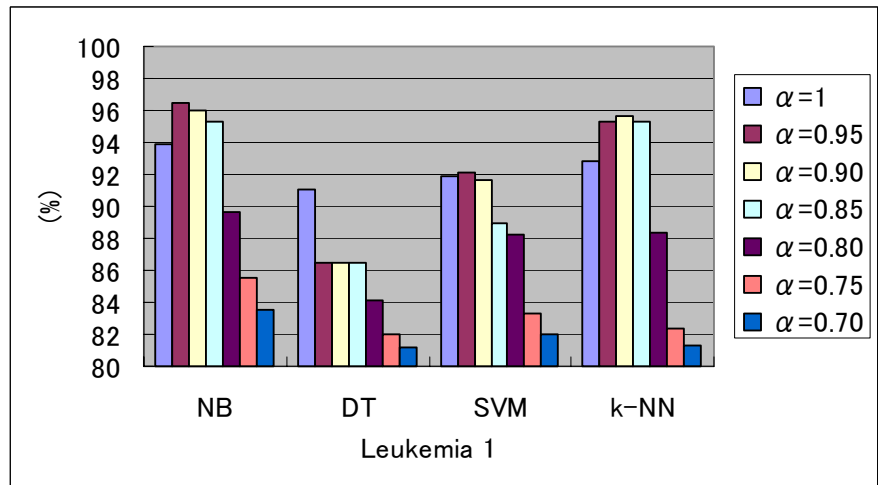


Fig. S4

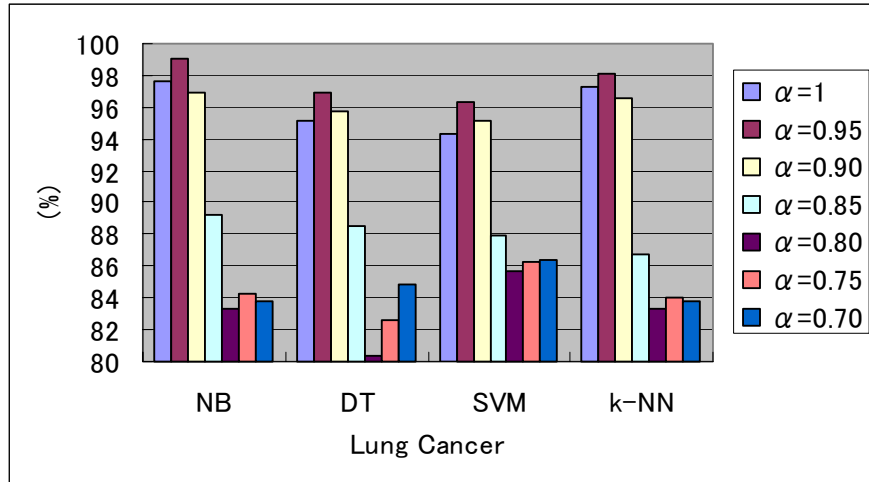


Fig. S5

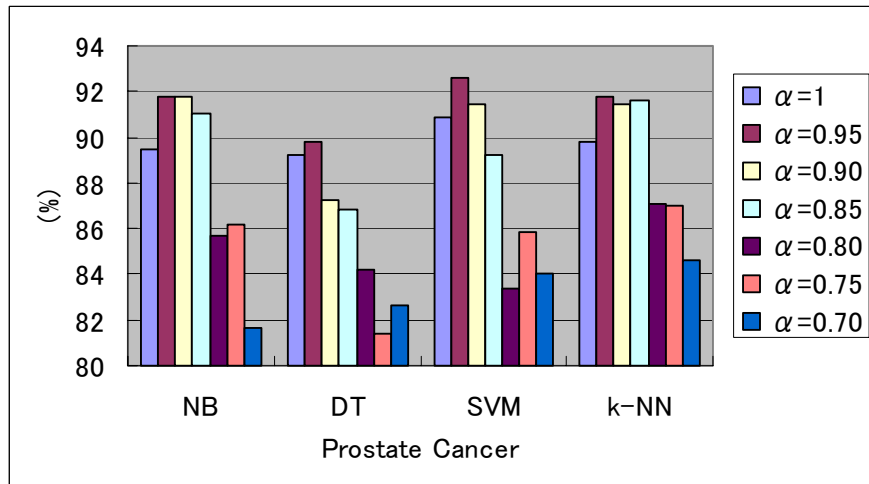


Fig. S6

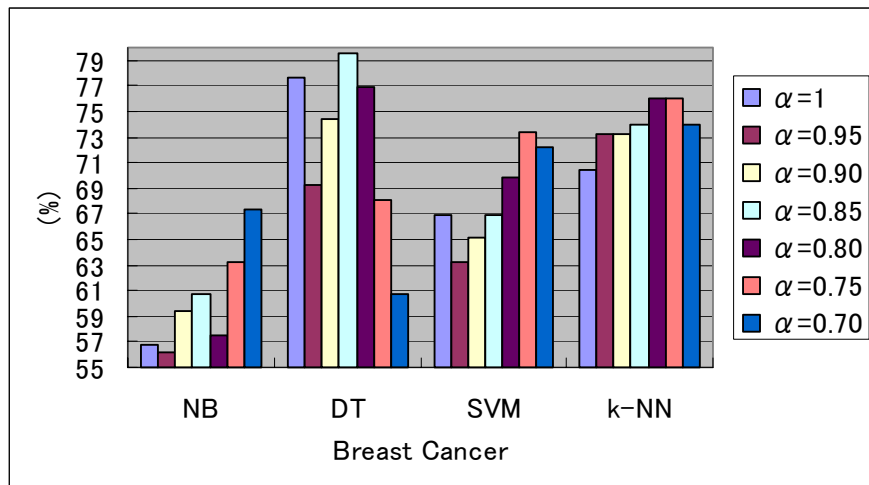
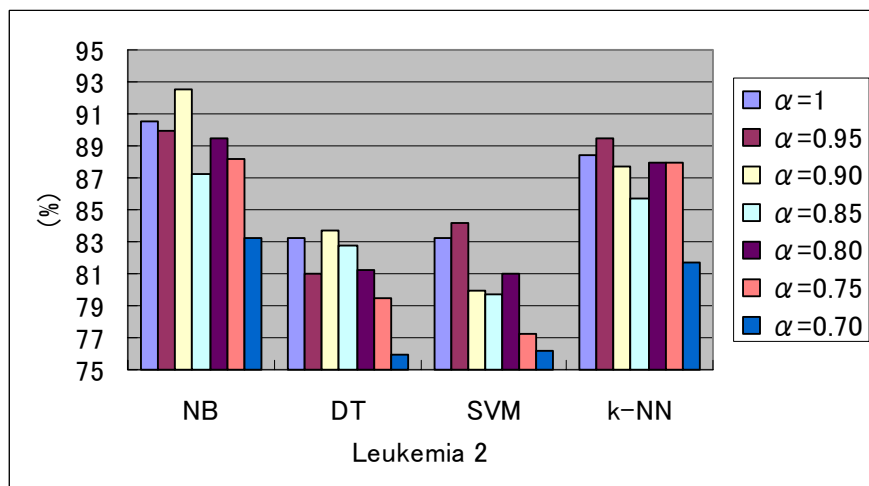


Fig. S7



3 Best classification accuracy for different  $\alpha$  values in the other seven datasets.

Fig. S8

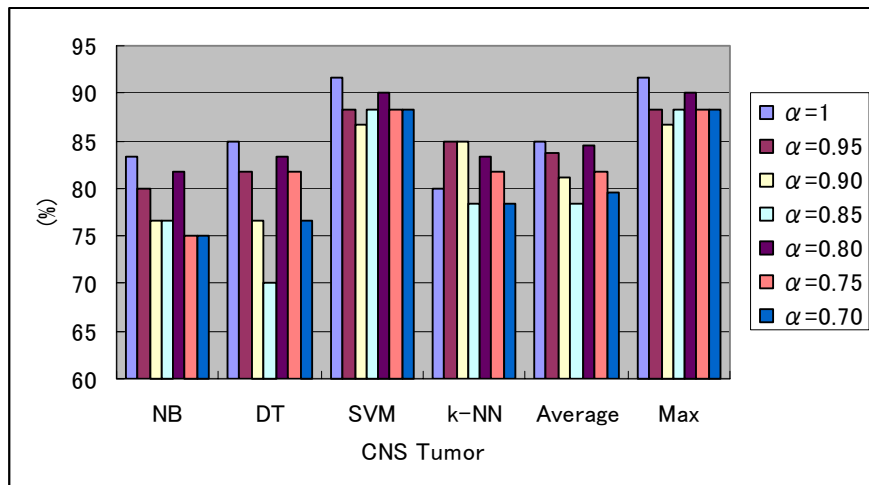


Fig. S9

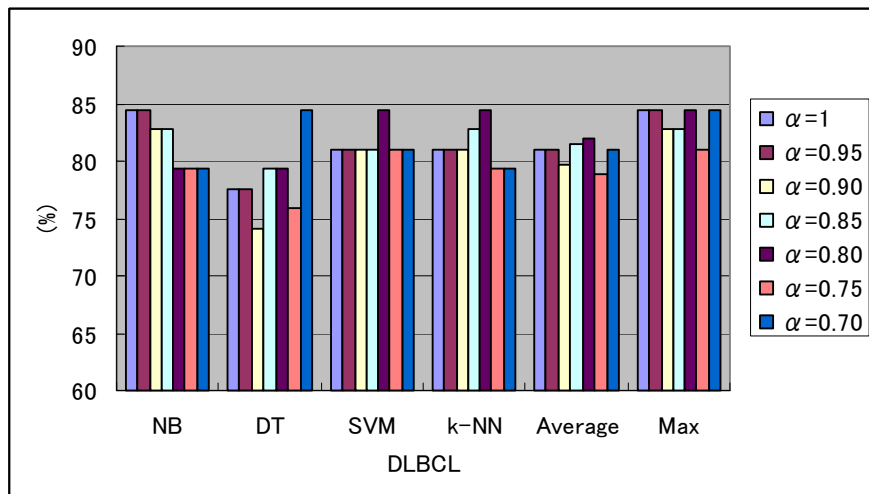


Fig. S10

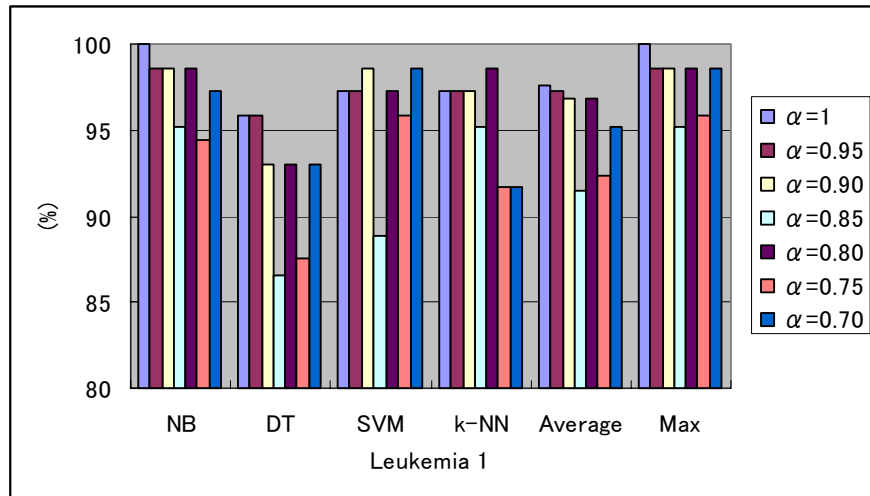


Fig. S11

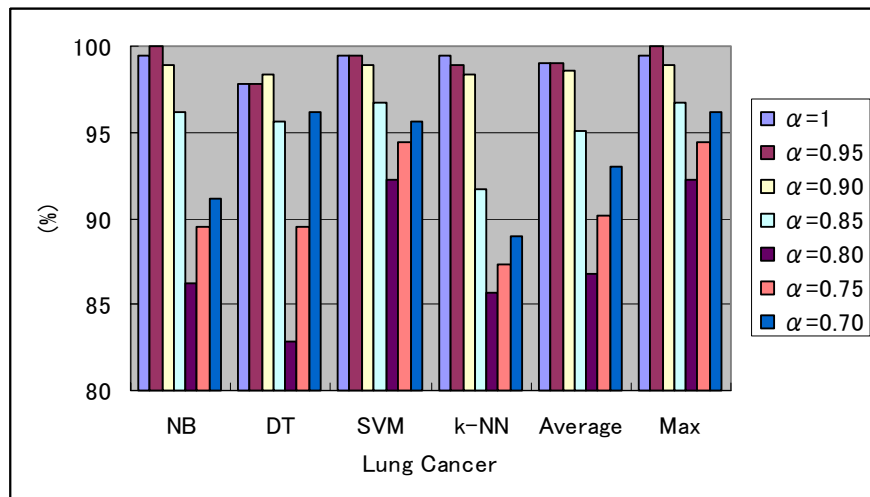


Fig. S12



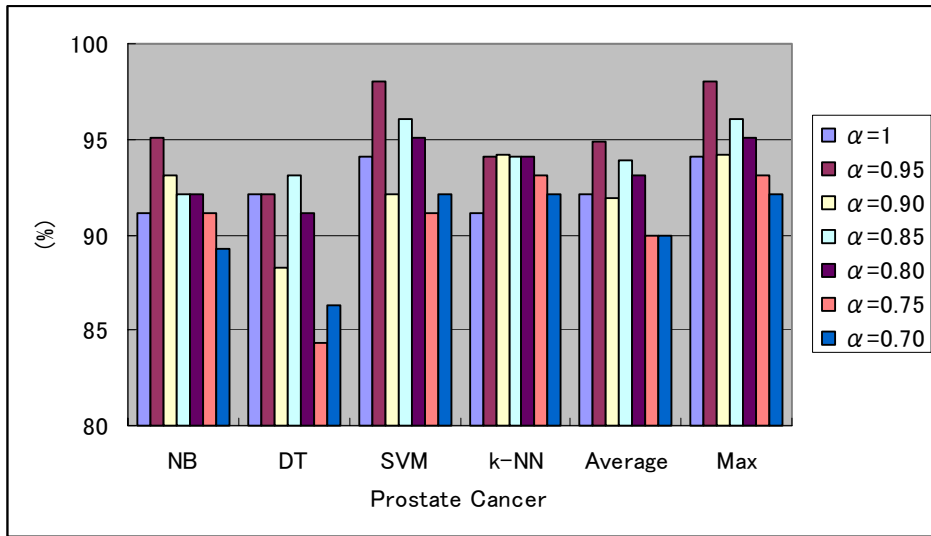


Fig. S13

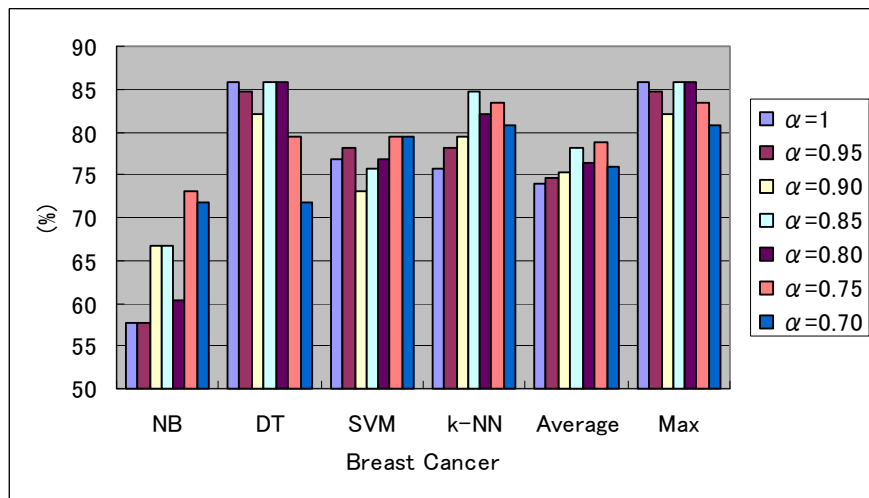
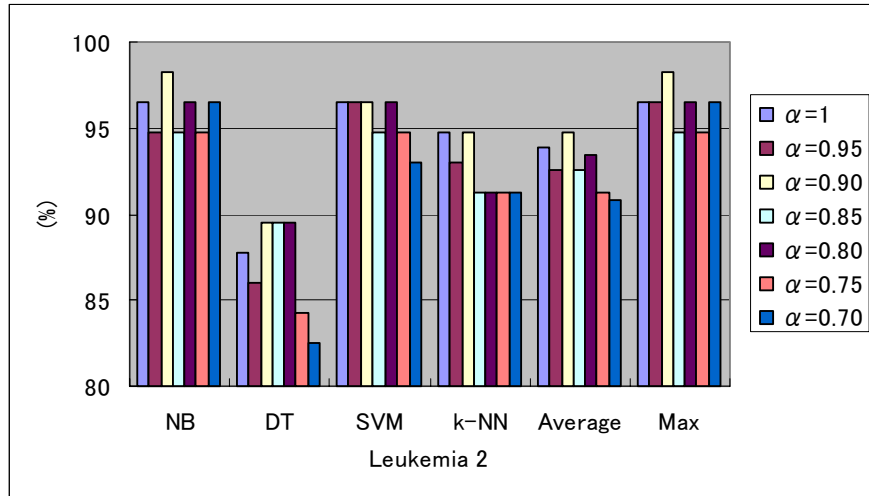


Fig. S14



4 The co-ordinates graphs showing under different  $\alpha$  value, the average and best classification results using every classifier in the other seven datasets.

Fig. S15

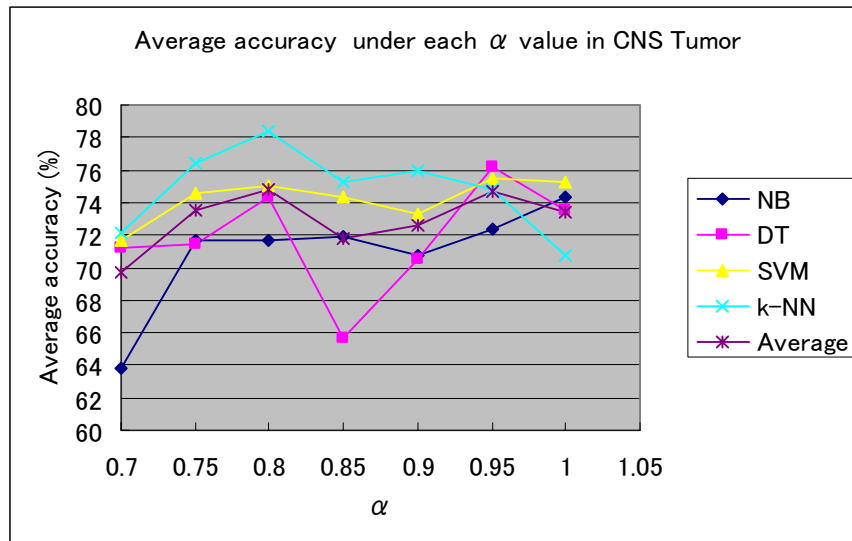


Fig. S16

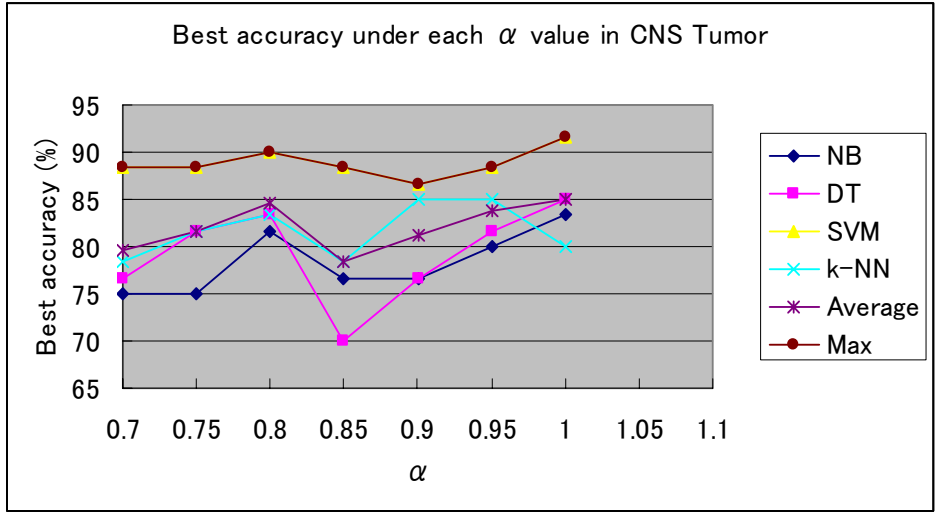


Fig. S17

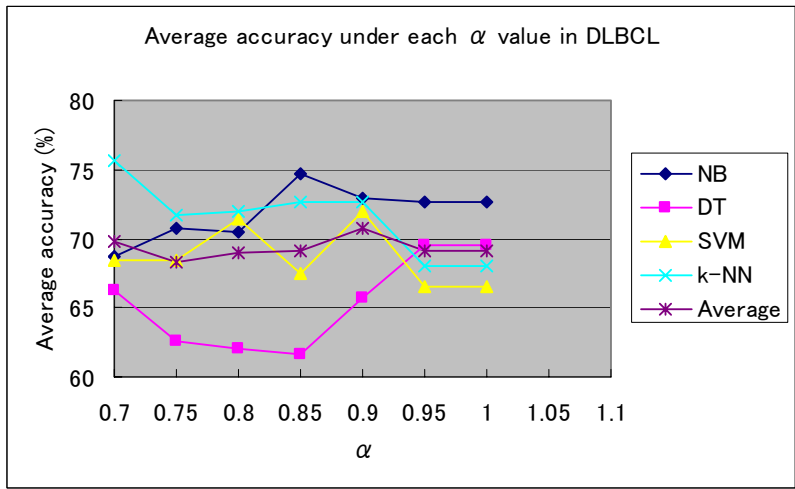


Fig. S18

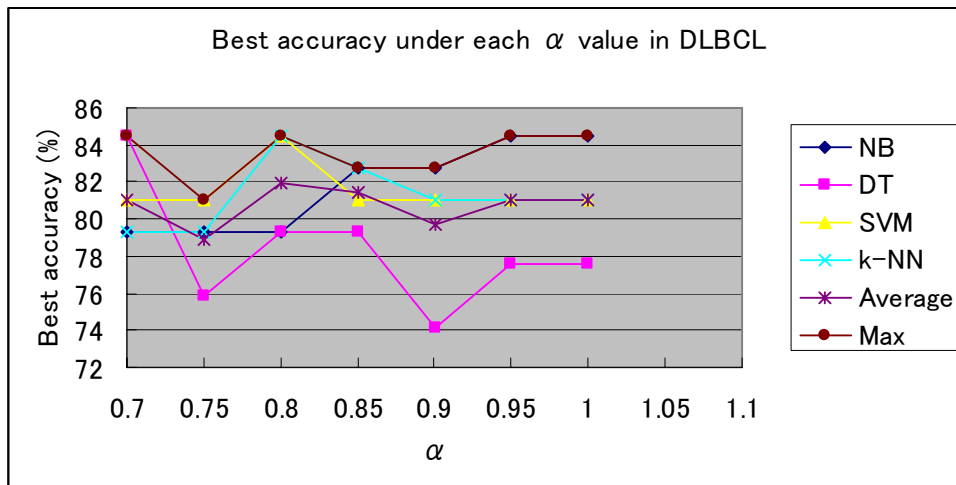


Fig. S19

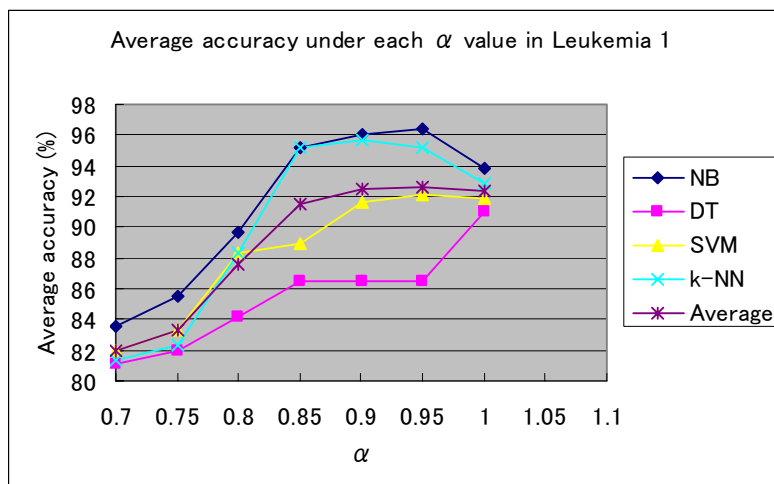


Fig. S20

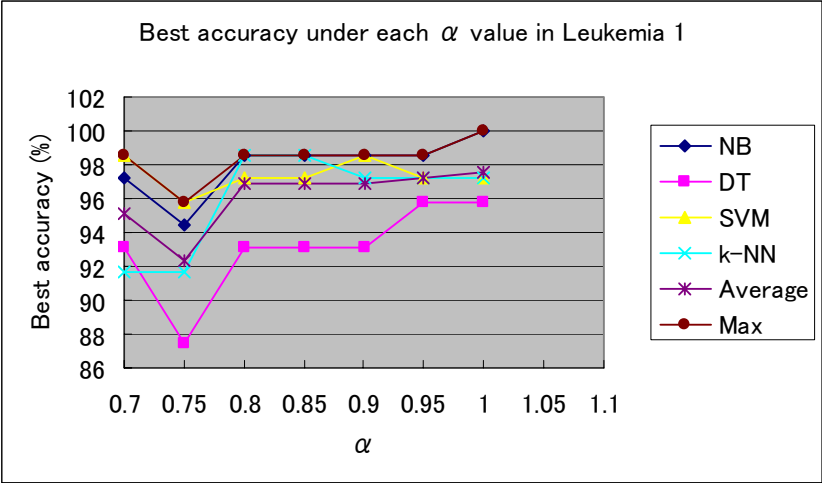


Fig. S21

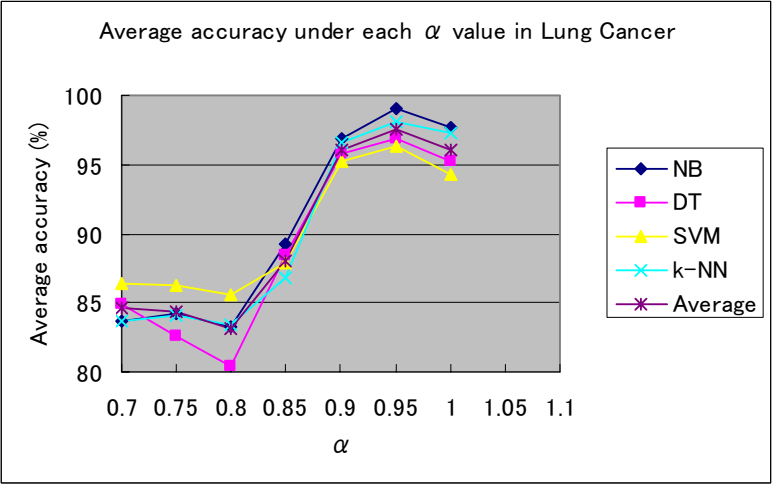


Fig. S22

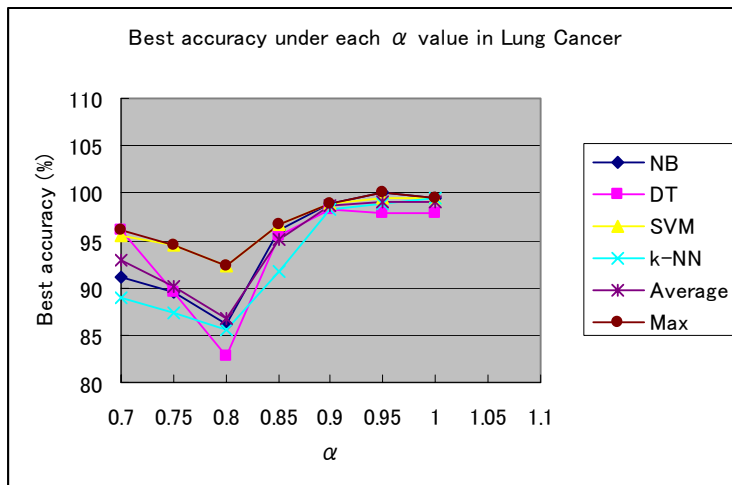


Fig. S23

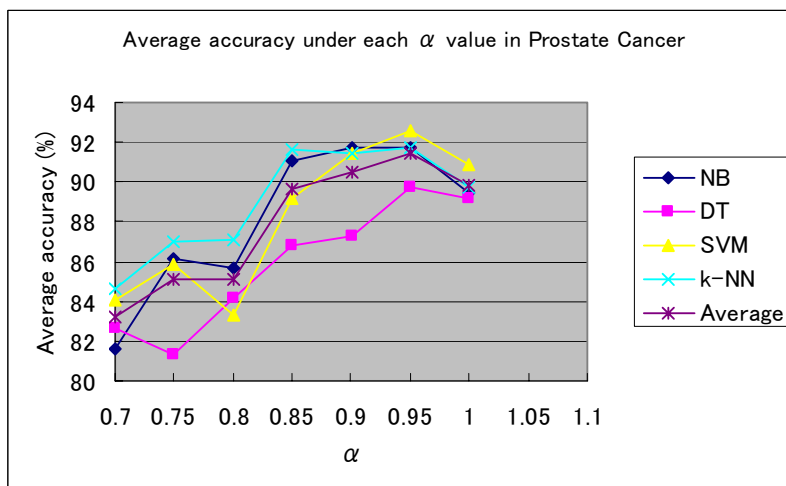


Fig. S24

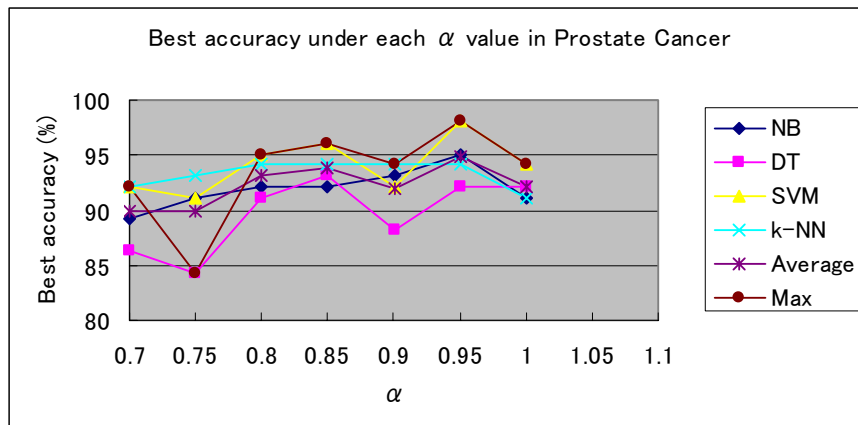


Fig. S25

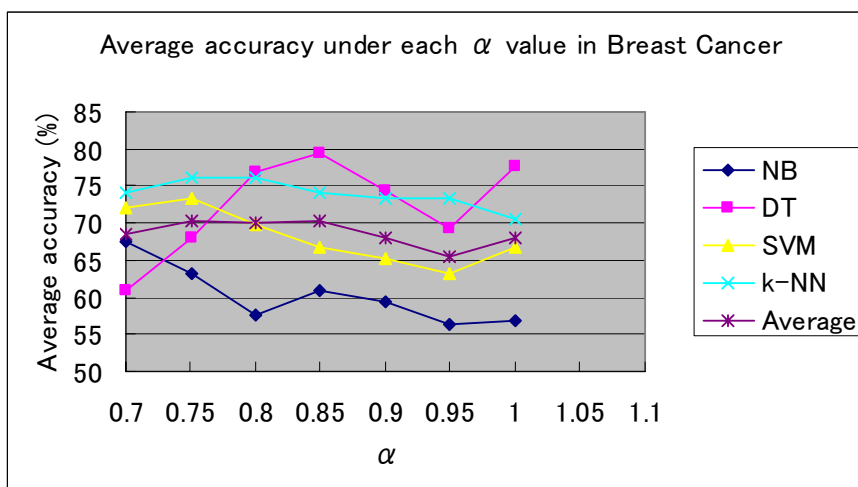


Fig. S26

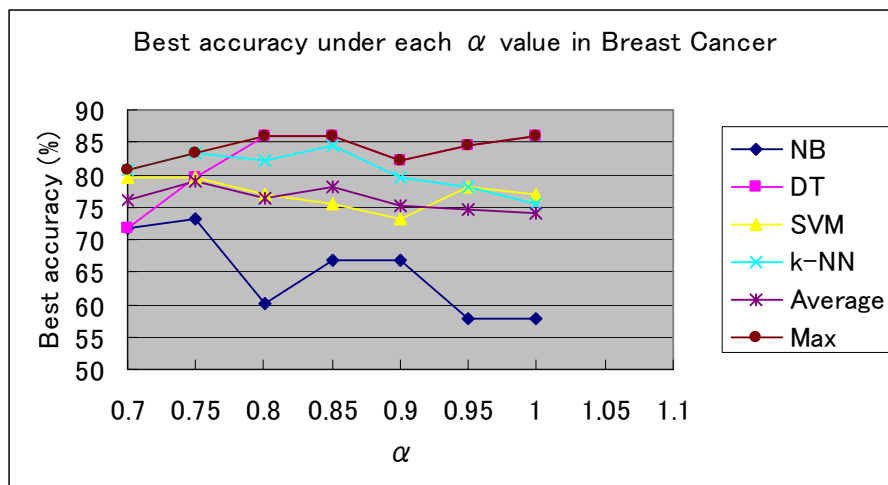


Fig. S27

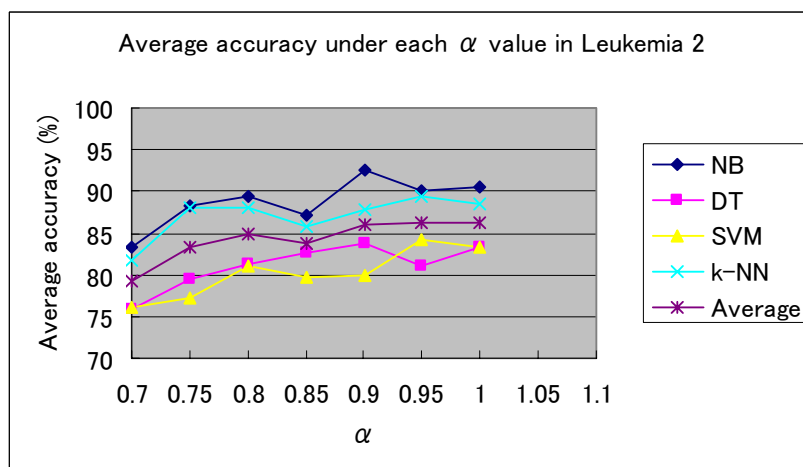
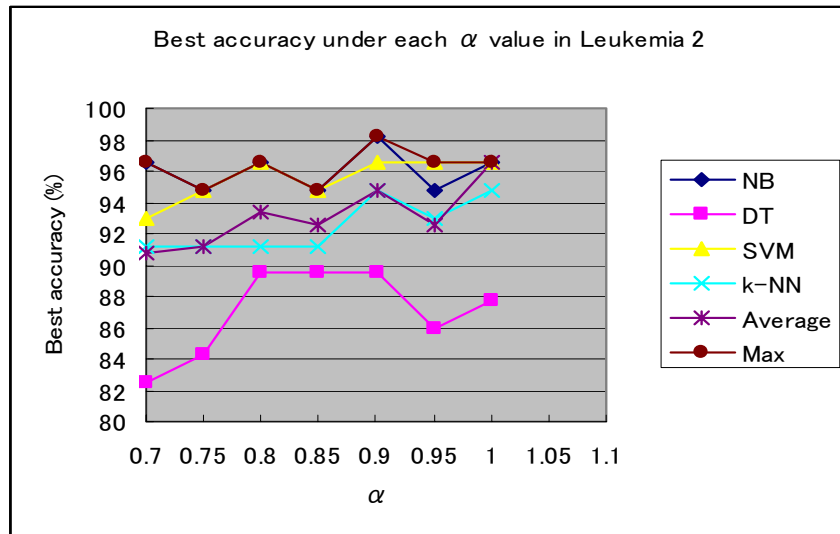


Fig. S28





**5 Classification results in the other datasets based on the other feature selection methods.** (The best classification accuracy on each combination of feature selection methods and classifiers was formatted in boldface.)

**CNS Tumor:**

Feature selection	Gene number	NB	DT	SVM	k-NN
Chi	100	73.33	68.33	<b>86.67</b>	78.33
	50	71.67	78.33	80	76.67
	20	<b>80</b>	78.33	71.67	73.33
	10	75	70	75	76.67
	5	65	75	61.67	<b>80</b>
	2	48.33	<b>81.67</b>	65	78.33
	1	60	80	65	76.67
Info	100	71.67	68.33	<b>90</b>	80
	50	71.67	68.33	83.33	78.33
	20	78.33	<b>81.67</b>	78.33	<b>83.33</b>
	10	<b>81.67</b>	71.67	75	78.33
	5	76.67	71.67	63.33	78.33
	2	48.33	<b>81.67</b>	65	78.33
RF	100	75	68.33	<b>76.67</b>	<b>80</b>

	50	75	66.67	70	73.33
	20	76.67	63.33	70	<b>80</b>
	10	<b>80</b>	76.67	73.33	71.67
	5	<b>80</b>	<b>78.33</b>	70	73.33
	2	71.67	38.33	66.67	63.33
	1	70	38.33	60	60
SU	100	71.67	68.33	<b>90</b>	76.67
	50	71.67	68.33	86.67	78.33
	20	73.33	70	70	73.33
	10	<b>75</b>	75	63.33	70
	5	66.67	75	65	71.67
	2	48.33	<b>81.67</b>	65	78.33
	1	56.67	<b>81.67</b>	65	<b>83.33</b>

**DLBCL:**

Feature selection	Gene number	NB	DT	SVM	k-NN
Chi	100	74.14	51.72	<b>75.86</b>	<b>77.59</b>
	50	<b>86.21</b>	51.72	<b>75.86</b>	75.86
	20	77.59	56.90	67.24	74.14
	10	68.97	65.52	68.97	63.79
	5	74.14	68.97	55.17	70.69
	2	74.14	74.14	55.17	74.14
	1	67.24	<b>79.31</b>	55.17	70.69
Info	100	74.14	51.72	74.14	<b>77.59</b>
	50	<b>86.21</b>	51.72	<b>77.59</b>	<b>77.59</b>
	20	82.76	55.17	67.24	67.24
	10	75.86	58.62	68.97	72.41
	5	81.03	63.79	68.97	74.14
	2	74.14	<b>74.14</b>	55.17	74.14
	1	70.69	70.69	55.17	75.86
RF	100	77.59	51.72	77.59	81.03
	50	<b>79.31</b>	60.34	74.14	86.21
	20	77.59	<b>74.14</b>	<b>79.31</b>	<b>87.93</b>
	10	75.86	70.69	77.59	79.31

	5	74.14	68.97	70.69	79.31
	2	70.69	65.52	75.86	74.14
	1	68.97	68.97	53.45	65.52
SU	100	74.14	51.72	74.14	72.41
	50	<b>84.48</b>	53.45	<b>77.59</b>	<b>79.31</b>
	20	<b>84.48</b>	58.62	70.69	75.86
	10	82.76	63.79	72.41	70.69
	5	81.03	65.52	67.24	74.14
	2	74.14	74.14	55.17	74.14
	1	67.24	<b>79.31</b>	55.17	70.69

**Leukemia 1:**

Feature selection	Gene number	NB	DT	SVM	k-NN
Chi	100	95.83	83.33	<b>97.22</b>	<b>97.22</b>
	50	95.83	81.94	<b>97.22</b>	<b>97.22</b>
	20	<b>97.22</b>	81.94	94.44	93.06
	10	95.83	83.33	93.06	93.06
	5	<b>97.22</b>	84.72	94.44	94.44
	2	94.44	<b>91.67</b>	93.06	94.44
	1	91.67	90.28	79.17	91.67
Info	100	<b>95.83</b>	80.56	<b>97.22</b>	<b>97.22</b>
	50	<b>95.83</b>	83.33	<b>97.22</b>	95.83
	20	<b>95.83</b>	81.94	94.44	94.44
	10	94.44	86.11	94.44	94.44
	5	93.06	87.5	93.06	94.44
	2	93.06	<b>94.44</b>	93.06	93.06
	1	88.89	91.67	88.89	90.28
RF	100	<b>95.83</b>	79.17	<b>97.22</b>	<b>94.44</b>
	50	<b>95.83</b>	81.94	<b>97.22</b>	<b>94.44</b>
	20	<b>95.83</b>	86.11	<b>97.22</b>	<b>94.44</b>
	10	<b>95.83</b>	88.89	93.06	93.06
	5	94.44	<b>94.44</b>	91.67	93.06
	2	91.67	88.89	91.67	88.89
	1	88.89	91.67	88.89	90.28

SU	100	<b>95.83</b>	79.17	<b>97.22</b>	<b>97.22</b>
	50	<b>95.83</b>	83.33	<b>97.22</b>	95.83
	20	<b>95.83</b>	81.94	95.83	<b>97.22</b>
	10	<b>95.83</b>	83.33	93.06	93.06
	5	94.44	87.5	94.44	94.44
	2	94.44	<b>91.67</b>	93.06	94.44
	1	91.67	90.28	79.17	91.67

### Lung Cancer:

Feature selection	Gene number	NB	DT	SVM	k-NN
Chi	100	<b>100</b>	95.58	<b>98.90</b>	<b>98.90</b>
	50	99.45	96.69	<b>98.90</b>	<b>98.90</b>
	20	99.45	97.24	<b>98.90</b>	<b>98.90</b>
	10	99.45	97.24	<b>98.90</b>	<b>98.90</b>
	5	99.45	97.24	97.79	98.34
	2	97.24	97.24	95.58	<b>98.90</b>
	1	96.69	<b>97.79</b>	91.71	98.34
Info	100	<b>100</b>	96.69	98.90	98.90
	50	<b>100</b>	97.24	98.90	98.90
	20	<b>100</b>	<b>97.79</b>	<b>99.45</b>	<b>99.45</b>
	10	99.45	<b>97.79</b>	98.90	98.34
	5	98.90	97.24	98.90	98.90
	2	98.34	95.03	95.03	98.34
	1	96.69	94.48	92.82	95.03
RF	100	97.24	97.79	<b>98.90</b>	97.79
	50	98.34	98.90	<b>98.90</b>	96.69
	20	98.34	98.34	98.34	97.24
	10	<b>98.90</b>	98.34	98.34	97.79
	5	97.79	<b>99.45</b>	98.34	98.90
	2	98.34	97.79	98.34	<b>99.45</b>
	1	96.13	97.24	95.58	97.24
SU	100	<b>100</b>	96.13	<b>98.90</b>	<b>98.90</b>
	50	<b>100</b>	96.69	<b>98.90</b>	<b>98.90</b>
	20	99.45	97.24	<b>98.90</b>	<b>98.90</b>

	10	99.45	97.24	98.34	98.34
	5	99.45	97.24	97.79	97.79
	2	97.24	97.24	95.58	<b>98.90</b>
	1	97.79	<b>97.79</b>	92.82	97.24

**Prostate Cancer:**

Feature selection	Gene number	NB	DT	SVM	k-NN
Chi	100	91.18	85.29	94.12	91.18
	50	<b>94.12</b>	87.25	<b>96.08</b>	94.12
	20	93.14	88.24	95.10	<b>95.10</b>
	10	93.14	85.29	<b>96.08</b>	94.12
	5	<b>94.12</b>	87.25	93.14	93.14
	2	92.16	<b>89.22</b>	90.20	91.18
	1	84.31	88.24	82.35	87.25
Info	100	91.18	87.25	<b>95.10</b>	93.14
	50	<b>94.12</b>	<b>92.16</b>	<b>95.10</b>	92.16
	20	93.14	90.20	<b>95.10</b>	<b>96.08</b>
	10	<b>94.12</b>	84.31	<b>95.10</b>	95.10
	5	<b>94.12</b>	87.25	93.14	93.14
	2	91.18	89.22	91.18	91.18
	1	84.31	88.24	82.35	87.25
RF	100	94.12	89.22	93.14	94.12
	50	<b>96.08</b>	91.18	93.14	93.14
	20	93.14	85.29	<b>94.12</b>	<b>95.10</b>
	10	90.20	<b>92.16</b>	91.18	94.12
	5	89.22	87.25	91.18	91.18
	2	91.18	89.22	91.18	91.18
	1	84.31	88.24	82.35	87.25
SU	100	92.16	87.25	93.14	94.12
	50	92.16	87.25	95.10	93.14
	20	93.14	<b>91.18</b>	94.12	<b>95.10</b>
	10	<b>95.10</b>	87.25	<b>96.08</b>	94.12
	5	94.12	90.20	93.14	92.16
	2	92.16	89.22	90.20	91.18

	1	87.25	89.22	68.63	86.27
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**Breast Cancer:**

Feature selection	Gene number	NB	DT	SVM	k-NN
Chi	100	57.69	74.36	<b>88.46</b>	<b>80.77</b>
	50	55.13	74.36	78.21	79.49
	20	53.85	66.67	70.51	75.64
	10	60.26	74.36	74.36	73.08
	5	<b>61.54</b>	<b>76.92</b>	64.10	76.92
	2	56.41	74.36	56.41	65.38
	1	56.41	42.31	57.69	78.21
Info	100	<b>57.69</b>	61.54	76.92	76.92
	50	55.13	76.92	<b>79.49</b>	<b>80.77</b>
	20	55.13	70.51	70.51	78.21
	10	<b>57.69</b>	<b>78.21</b>	64.10	74.36
	5	56.41	<b>78.21</b>	56.41	74.36
	2	56.41	74.36	56.41	65.38
	1	56.41	74.36	57.69	78.21
RF	100	78.21	61.54	<b>83.33</b>	<b>88.46</b>
	50	<b>83.33</b>	<b>78.21</b>	82.05	<b>88.46</b>
	20	74.36	65.38	76.92	76.92
	10	75.64	69.23	71.79	82.05
	5	73.08	71.79	73.08	67.95
	2	67.95	74.36	67.95	53.85
	1	69.23	74.36	58.97	62.82
SU	100	55.13	61.54	<b>83.33</b>	78.21
	50	52.56	67.95	<b>83.33</b>	<b>82.05</b>
	20	58.97	78.21	73.08	73.08
	10	<b>62.82</b>	<b>83.33</b>	73.08	75.64
	5	60.26	<b>83.33</b>	69.23	75.64
	2	56.41	74.36	56.41	65.38
	1	56.41	42.31	57.69	78.21

**Leukemia 2:**

Feature selection	Gene number	NB	DT	SVM	k-NN
Chi	100	92.98	73.68	91.23	91.23
	50	94.74	84.21	<b>94.74</b>	91.23
	20	<b>96.49</b>	80.70	92.98	91.23
	10	<b>96.49</b>	84.21	87.72	91.23
	5	94.74	<b>89.47</b>	70.18	<b>94.74</b>
	2	84.21	87.72	64.91	84.21
	1	85.96	<b>89.47</b>	52.63	85.96
	Info	100	92.98	85.96	<b>94.74</b>
50		94.74	82.46	92.98	89.47
20		<b>96.49</b>	80.70	<b>94.74</b>	92.98
10		94.74	84.21	91.23	91.23
5		94.74	89.47	70.18	<b>94.74</b>
2		85.96	<b>91.23</b>	70.18	91.23
1		85.96	89.47	52.63	85.96
RF		100	94.74	84.21	92.98
	50	<b>96.49</b>	87.72	<b>96.49</b>	<b>94.74</b>
	20	94.74	89.47	91.23	91.23
	10	91.23	<b>91.23</b>	91.23	91.23
	5	87.72	80.70	89.47	91.23
	2	85.96	82.46	82.46	84.21
	1	71.93	84.21	70.18	82.46
	SU	100	92.98	80.70	<b>98.25</b>
50		92.98	84.21	96.49	92.98
20		<b>94.74</b>	85.96	94.74	92.98
10		92.98	89.47	85.96	92.98
5		<b>94.74</b>	<b>91.23</b>	70.18	<b>96.49</b>
2		85.96	<b>91.23</b>	70.18	91.23
1		85.96	89.47	52.63	85.96