**Task 1**

**Neural Network and Deep Learning**

**Team ID: SC\_H17**

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1. **Feature X1 with other features:**

**Chart, scatter chart

Description automatically generated**

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| **X1 & X2**  Adelie & Chinstrap **Good** Discrimination  Adelie & Gentoo **Good** Discrimination  Chinstrap & Gentoo **Bad** Discrimination | **X1 & X3**  Adelie & Chinstrap **Bad** Discrimination  Adelie & Gentoo **Bad** Discrimination  Chinstrap & Gentoo **Good** Discrimination |
| **X1 & X4**  Adelie & Chinstrap **Bad** Discrimination  Adelie & Gentoo **Bad** Discrimination  Chinstrap & Gentoo **Bad** Discrimination | **X1 & X5**  Adelie & Chinstrap **Bad** Discrimination  Adelie & Gentoo **Bad** Discrimination  Chinstrap & Gentoo **Good** Discrimination |

**The best combination of features: X1 & X2**

1. **Feature X2 with other features:**

Chart, scatter chart

Description automatically generated

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| **X2 & X3**  Adelie & Chinstrap **Bad** Discrimination  Adelie & Gentoo **Good** Discrimination  Chinstrap & Gentoo **Good** Discrimination | **X2 & X4**  Adelie & Chinstrap **Bad** Discrimination  Adelie & Gentoo **Bad** Discrimination  Chinstrap & Gentoo **Good** Discrimination |
| **X2 & X5**  Adelie & Chinstrap **Bad** Discrimination  Adelie & Gentoo **Good** Discrimination  Chinstrap & Gentoo **Good** Discrimination |

**The best combination of features: X2 & X3**

1. **Feature X3 with other features:**

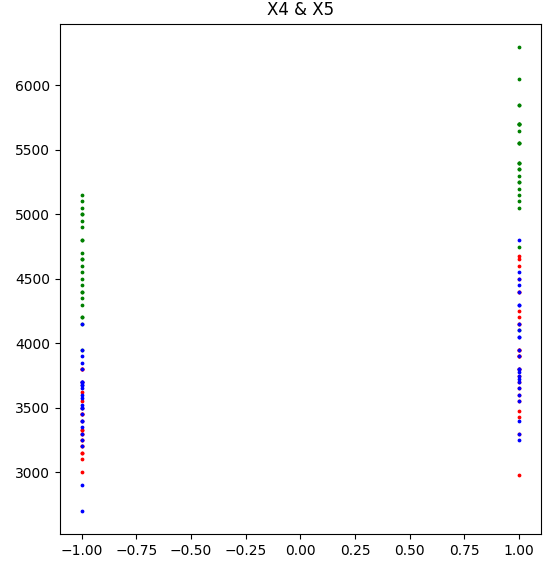
Chart, scatter chart

Description automatically generated

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| **X3 & X4**  Adelie & Chinstrap **Bad** Discrimination  Adelie & Gentoo**Bad** Discrimination  Chinstrap & Gentoo**Good** Discrimination | **X3 & X5**  Adelie & Chinstrap **Bad** Discrimination  Adelie & Gentoo**Bad** Discrimination  Chinstrap & Gentoo**Bad** Discrimination |

**The best combination of features: X3 & X4**

1. **Feature X4 with other features:**



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| **X4 & X5**  Adelie & Chinstrap **Bad** Discrimination  Adelie & Gentoo **Good** Discrimination  Chinstrap & Gentoo**Good** Discrimination |

* **30 Combinations of 2 features for 2 classes**

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| 1. **X1 & X2 (Adelie - Gentoo), Acc = 100%**   Chart, scatter chart  Description automatically generated | 1. **X1 & X2 (Adelie - Chinstrap), Acc = 100%**   Chart, scatter chart  Description automatically generated |
| 1. **X1 & X2 (Gentoo - Chinstrap), Acc = 97.5%**   Chart, scatter chart  Description automatically generated | 1. **X1 & X3 (Adelie - Gentoo), Accuracy = 65%**   Chart, scatter chart  Description automatically generated |
| 1. **X1 & X3 (Adelie - Chinstrap), Acc = 90%**   Chart, scatter chart  Description automatically generated | 1. **X1 & X3 (Gentoo - Chinstrap), Acc = 95%**   Chart, scatter chart  Description automatically generated |

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| 1. **X1 & X4 (Adelie - Gentoo), Acc = 75.5%**   Chart, line chart  Description automatically generated | 1. **X1 & X4 (Adelie - Chinstrap), Acc = 50%**   Chart, line chart  Description automatically generated |
| 1. **X1 & X4 (Gentoo - Chinstrap), Acc = 50%**   Chart, line chart  Description automatically generated | 1. **X1 & X5 (Adelie - Gentoo), Acc = 50%**   **Chart, scatter chart  Description automatically generated** |
| 1. **X1 & X5 (Adelie - Chinstrap), Acc = 50%**   Chart, scatter chart  Description automatically generated | 1. **X1 & X5 (Gentoo - Chinstrap), Acc = 97.5%**   Chart, scatter chart  Description automatically generated |

|  |  |
| --- | --- |
| 1. **X2 & X3 (Adelie - Gentoo), Acc = 100%**   Chart, scatter chart  Description automatically generated | 1. **X2 & X3 (Adelie - Chinstrap), Acc = 65%**   Chart, line chart  Description automatically generated |
| 1. **X2 & X3 (Gentoo - Chinstrap), Acc = 100%**   Chart, scatter chart  Description automatically generated | 1. **X2 & X4 (Adelie - Gentoo), Acc = 50%**   **Chart, line chart  Description automatically generated** |
| 1. **X2 & X4 (Adelie - Chinstrap), Acc = 50%**   Chart, line chart  Description automatically generated | 1. **X2 & X4 (Gentoo - Chinstrap), Acc = 50%**   Chart, line chart  Description automatically generated |
| 1. **X2 & X5 (Adelie - Gentoo), Acc = 100%**   Chart, scatter chart  Description automatically generated | 1. **X2 & X5 (Adelie - Chinstrap), Acc = 50%**   Chart, scatter chart  Description automatically generated |
| 1. **X2& X5 (Gentoo - Chinstrap), Acc = 100%**   Chart, scatter chart  Description automatically generated | 1. **X3 & X4 (Adelie - Gentoo), Acc = 50%**   **Chart, line chart, scatter chart  Description automatically generated** |
| 1. **X3 & X4 (Adelie - Chinstrap), Acc = 50%**   Chart, line chart  Description automatically generated | 1. **X3 & X4 (Gentoo - Chinstrap), Acc = 50%**   Chart, line chart  Description automatically generated |
| 1. **X3 & X5 (Adelie - Gentoo), Acc = 80%**   Chart, scatter chart  Description automatically generated | 1. **X3 & X5 (Adelie - Chinstrap), Acc = 50%**   Chart, line chart, scatter chart  Description automatically generated |
| 1. **X3 & X5 (Gentoo - Chinstrap), Acc = 50%**   Chart, scatter chart  Description automatically generated | 1. **X4 & X5 (Adelie - Gentoo), Acc = 50%**   **Chart  Description automatically generated** |
| 1. **X4 & X5 (Adelie - Chinstrap), Acc = 50%**   Chart  Description automatically generated | 1. **X4 & X5 (Gentoo - Chinstrap), Acc = 50%**   Chart  Description automatically generated |

* **Conclusion:**

**The highest accuracy achieved is 100% by features:**

* + **X1 & X2 (Adelie – Gentoo) & (Adelie – Gentoo)**
  + **X2 & X3 (Adelie – Gentoo) & (Gentoo – Chinstrap)**
  + **X2 & X5 (Adelie – Gentoo) & (Gentoo – Chinstrap)**