# GROUP-5 PROJECT 1 RESULTS

## Random Forest Dataset 1 Results:

a) Confusion Matrix

| | Pain | No Pain |
|---|---|---|
| Pain | 24 | 8 |
| No Pain | 9 | 15 |

From the Random Forest algorithm 24 correctly classified as pain and 15 were correctly classified as no pain. While 9 were falsely classified as no pain and 8 were falsely classified as pain.

b) Precision: For NoPain(0) -> 0.79
For Pain(1) -> 0.67

c) Recall: For NoPain(0) -> 0.72
For Pain(1)- > 0.75

d) Classification Accuracy: 69.6%

## Random Forest Dataset 2 Results:

a) Confusion Matrix

| | Pain | No Pain |
|---|---|---|
| Pain | 243 | 11 |
| No Pain | 25 | 1 |

From the Random Forest algorithm 243 correctly classified as pain and 1 was correctly classified as no pain. While 25 were falsely classified as no pain and 11 were falsely classified as pain.

b) Precision: For NoPain(0) -> 0.90
For Pain(1) -> 0.00

c) Recall: For NoPain(0) -> 0.97
For Pain(1)- > 0.00

d) Classification Accuracy: 87.14%

## SVM Results for Dataset1:

a) Confusion Matrix:

| | Pain | No Pain |
|---|---|---|
| Pain | 20 | 6 |
| No Pain | 2 | 28 |

From the Support Vector Machine algorithm 20 correctly classified as pain and 28 were correctly classified as no pain. While 2 were falsely classified as no pain and 6 were falsely classified as pain.

b) Precision: For NoPain(0) -> 0.91
For Pain(1) -> 0.82

c) Recall: For NoPain(0) -> 0.77
For Pain(1)- > 0.93

d) Classification Accuracy: 85.71%

## SVM Results for Dataset2:

a) Confusion Matrix:

| | Pain | No Pain |
|---|---|---|
| Pain | 253 | 2 |
| No Pain | 22 | 3 |

From the Support Vector Machine algorithm 253 correctly classified as pain and 3 were correctly classified as no pain. While 22 were falsely classified as no pain and 2 were falsely classified as pain.

b) Precision: For NoPain(0) -> 0.92
For Pain(1) -> 0.60

c) Recall: For NoPain(0) -> 0.99
For Pain(1)- > 0.12

d) Classification Accuracy: 91.42%

### Explanation for the Results obtained above:

We have considered Task 8 (Submerging hand into ice water) to give pain. So accordingly, for all participants we had marked for task 8 as pain and no pain for all rest of the tasks. No Pain has been marked as 0 and pain has been marked as 1.

**Team Members Contribution:**

- Sharath Vanamala: Extracting and importing the files.
- Dhiren Raj Korukonda: RF algorithm implementation.
- Sowmya Munaganuri: SVM algorithm implementation.