



# ActivPal Week 7

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# Table of contents



WHAT HAVE WE DONE  
PREVIOUS WEEK?



WHAT ARE OUR GOALS  
FOR THE NEW SPRINT?

# What have we done previous week?



Sprint goal: Have basic activity recognition model (achieved)



Improved our activity recognition model



Normalized X, Y, Z values to solve the DiceFace issue



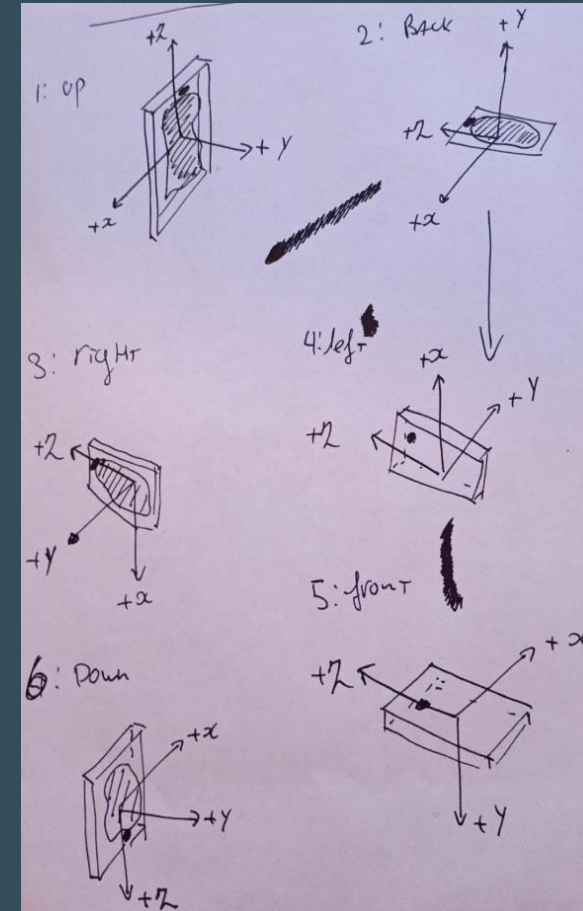
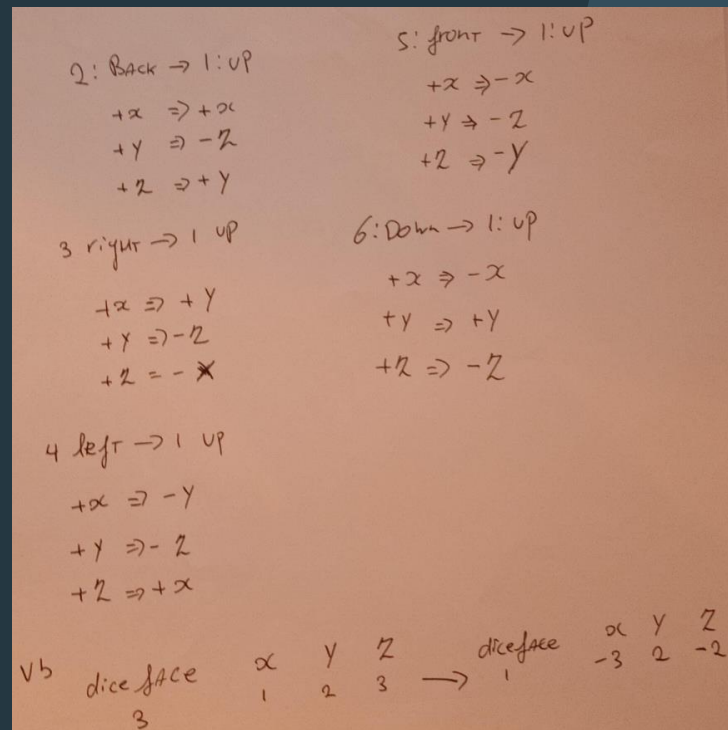
Discovered correlations between MET and X, Y, Z values



DiceFace Linear Regression Experiment

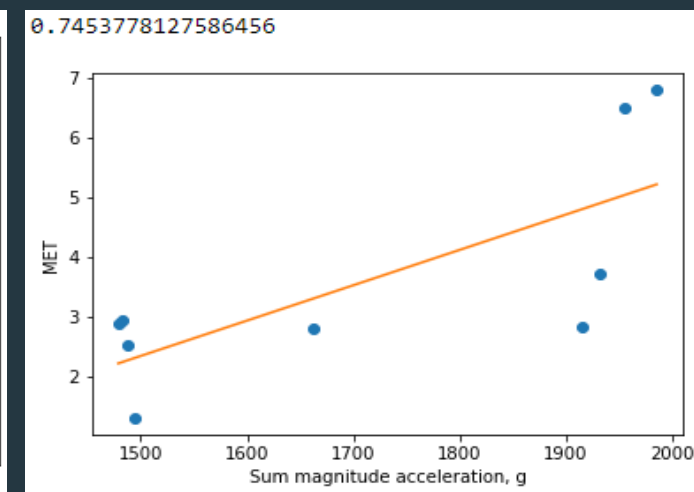
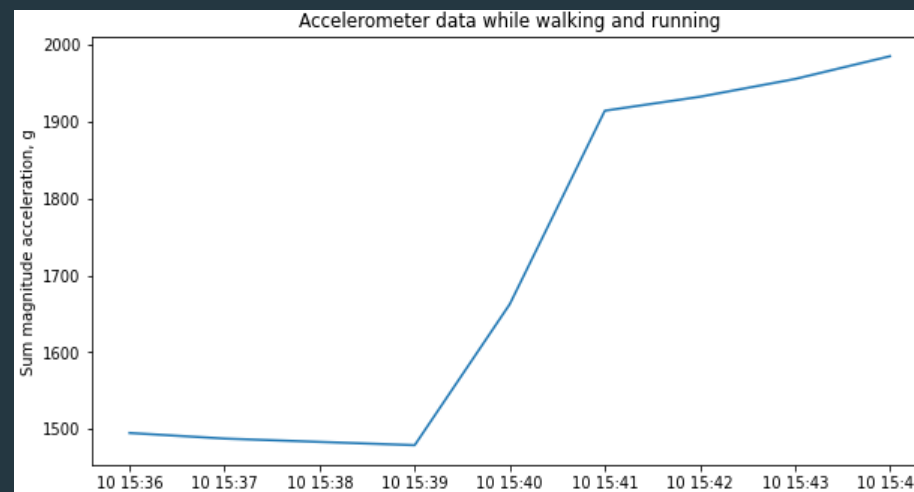
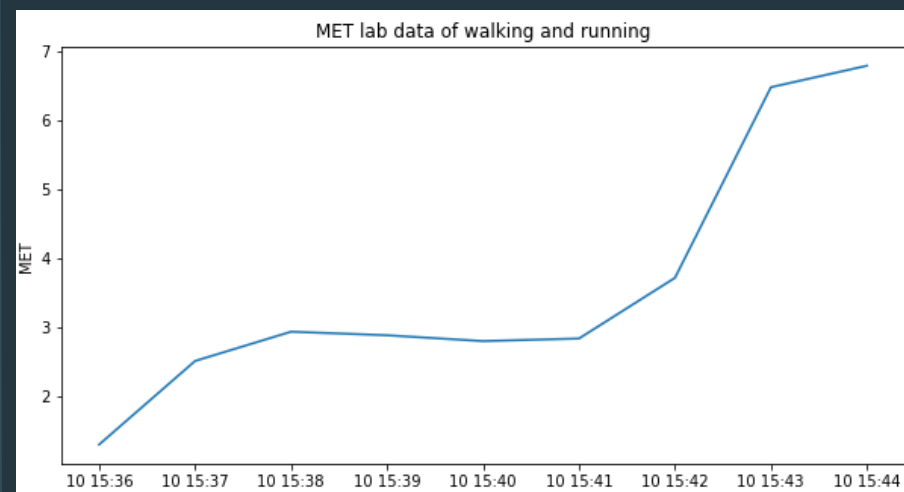
# Normalized x, y, z values using diceface

- Created efficient script to set the correct diceface values
  - Finished within 3 hours



# Discovered correlations between MET and X, Y, Z values

- Looked at lab and accelerometer data of 1 respondent (for now)
- Found 74.5% correlation between mean of MET and summation of magnitude of acceleration in a minute



# Improved our activity recognition model

## OPTIMIZATIONS / CONFIGURATIONS

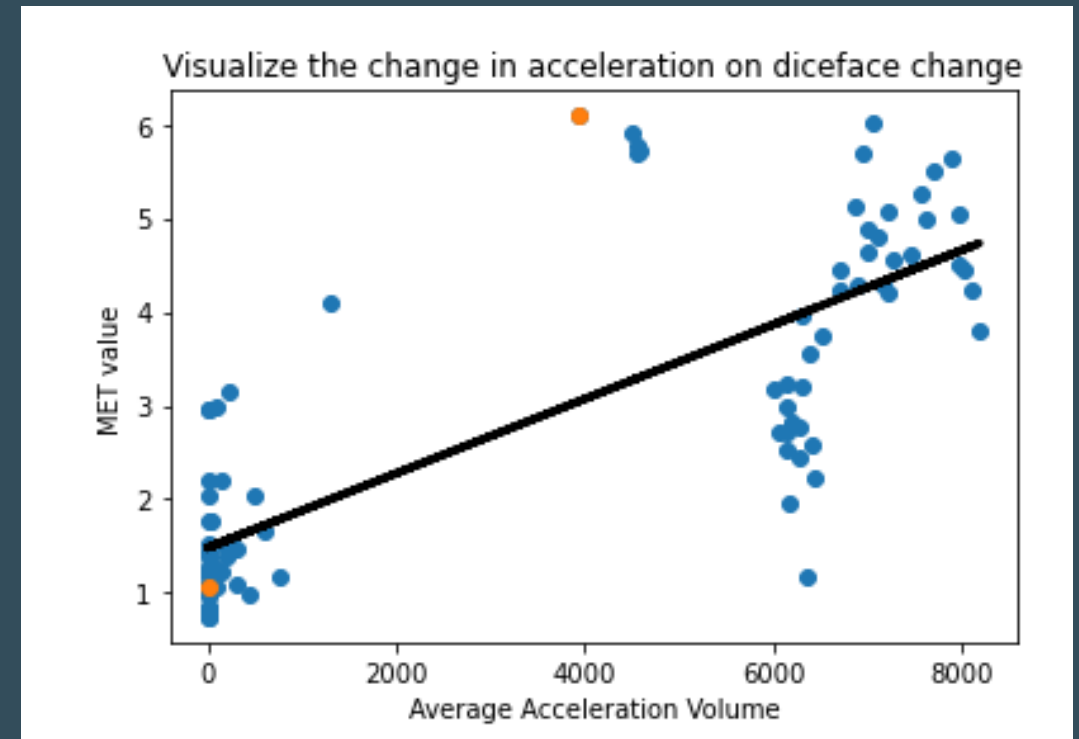
- Balance dataset
- Time segment size 6.4 seconds
- Removed peak distance features
- Added features
  - Std and mean for y
  - Std and mean for z

## RESULT

- Decision Tree model
  - Accuracy: 0.87
  - Precision: 0.95
  - Recall 0.87
- Random tree forest
  - Accuracy: 0.87
  - Precision: 0.95
  - Recall: 0.88

# Diceface Linear Regression Experiment

- - Goal of experiment is to see what changes happen when the direction of the diceface changes.
- - Orange dot is a change in diceface direction



# What are our goals for the new sprint?

- - The Topic of our next Sprint is:  
    **"Create a model that predicts MET value based on XYZ value"**
- - Improve/Update current models with our normalized dataset
- - Finish Research Plan



A person wearing a dark suit and a light-colored shirt is holding a white rectangular sign with both hands. The sign has the word "QUESTIONS?" written on it in a bold, dark blue, sans-serif font. The background is a solid dark teal color.

**QUESTIONS?**