Package ‘sphereML’

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Type Package

Title Analyzing Students' Performance Dataset in Physics Education Research (SPHERE) using Machine Learning (ML)

Version 0.1.1

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Description A simple package facilitating ML based analysis for physics education research (PER) purposes. The implemented machine learning technique is random forest optimized by item response theory (IRT) for feature selection and genetic algorithm (GA) for hyperparameter tuning. The data analyzed here has been made available in the CRAN repository through the 'spheredata' package. The SPHERE stands for Students' Performance in Physics Education Research (PER). The students are the eleventh graders learning physics at the high school curriculum. We follow the stream of multidimensional students' assessment as probed by some research based assessments in PER. The goal is to predict the students' performance at the end of the learning process. Three learning domains are measured including conceptual understanding, scientific ability, and scientific attitude. Furthermore, demographic backgrounds and potential variables predicting students' performance on physics are also demonstrated.

BugReports https://github.com/santosoph/sphereML/issues

URL https://github.com/santosoph/sphereML

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Depends R (>= 3.50)

Imports shiny, shinydashboard, spheredata, lavaan, semPlot, CTT, mirt, shinycssloaders, FSelectorRcpp, randomForest, caret, caTools, pROC, GA, readxl

Encoding UTF-8

RoxygenNote 7.3.2

NeedsCompilation no

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`start_sphereML` *Start a shiny application of sphereML*

Description

An interactive Shiny application for running a machine learning analysis to the 'spheredata' package.

Usage

```
start_sphereML()
```

Details

This starts the application on the users local computer.

Value

A user interface of shiny application.

Examples

```
## Not run:
library(sphereML)
start_sphereML()

## End(Not run)
```

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