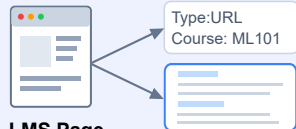
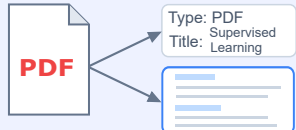


Learning Resource

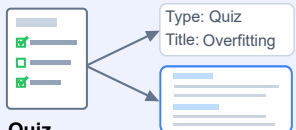
Metadata & Content Extraction



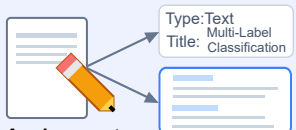
LMS Page



PDF/File



Quiz



Assignment

Learning Resource's Fragmentation

Fragment x₁

ID: S1101 Section 1: Introduction

Fragment x₂

ID: C6500 Chapter 1: Overview

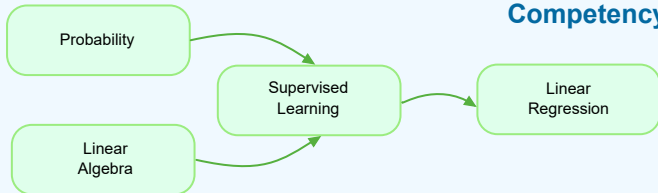
Fragment x₃

ID: Q2700 Quiz 1: Overfitting

Fragment x₄


ID: A10272 Assignment 1: Classification

Competency Graph and Profiles



Ontology-based Knowledge Graph:

Object Property:  prerequisiteOf

Class:  Competency

Domain: Competency
Range: Competency
Inverse: hasPrerequisite

Description:

Supervised method for predicting a continuous target with a linear function of features, usually fit by minimizing squared error.

Synonyms:

Least Squares Regression, Linear Model

Graph Context:

Direct prerequisite: Supervised Learning

Enables: Regularization, LogisticRegression, Metrics

Alignment and Tagging Pipeline

1. Candidate Generation (Retrieval)

Feature Engineering
Logistic Regression
Data Processing
Linear Regression

Top-K Candidates

2. LLM-based Tagging

Analyze fragment, select competency, provide evidence.

```
JSON: {
  "tag": "Linear Regression",
  "confidence": 0.95
}
```

3. Graph-aware Reconciliation

Granularity Control
Prerequisite Check
Deduplication

4. Resource-level Aggregation

Fragments
 Σ
Resource Mapping
Resource-level Scores