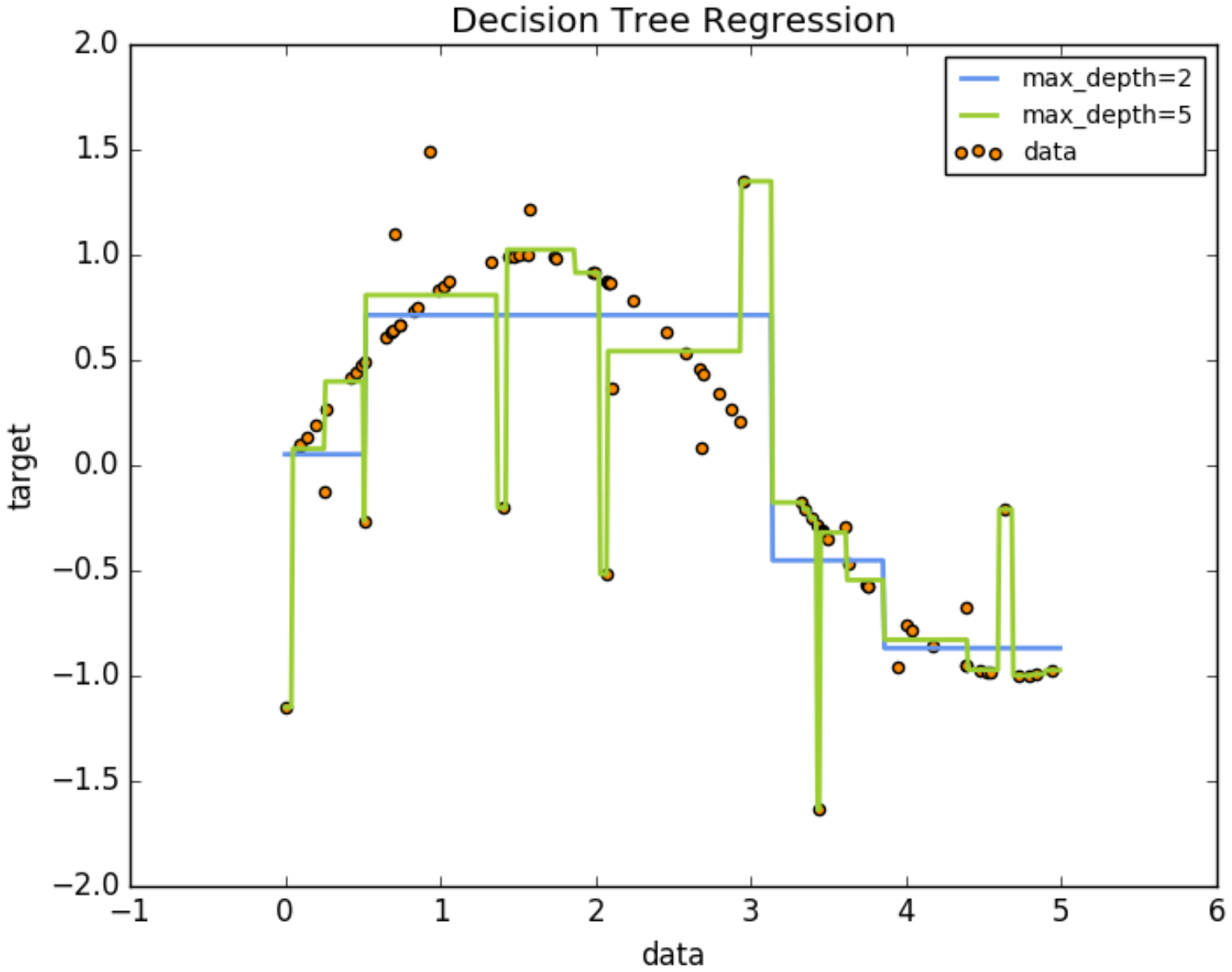
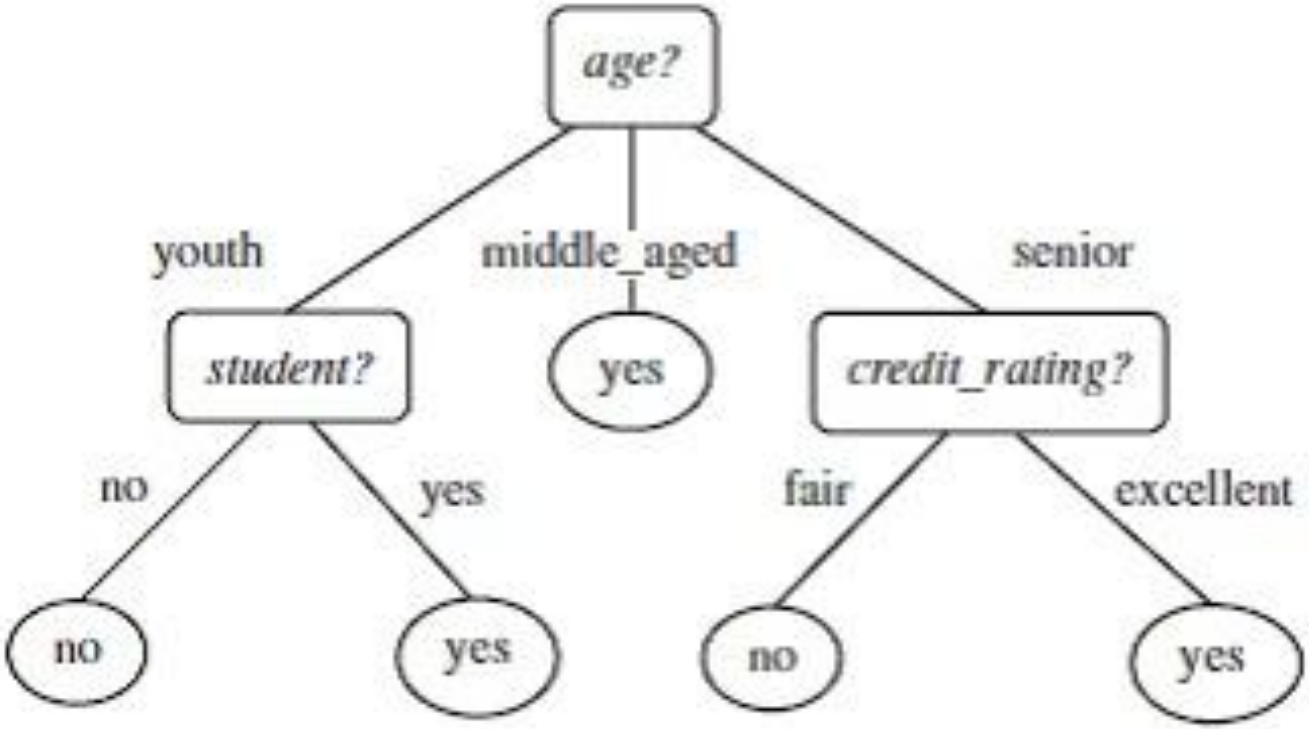

Decision
Tree
Classifier

EX: Fitting a SINE curve

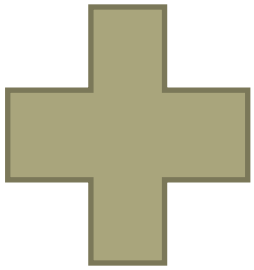


Decisions, Decisions, Decisions…



Algorithm Breakdown

TREE INDUCTION

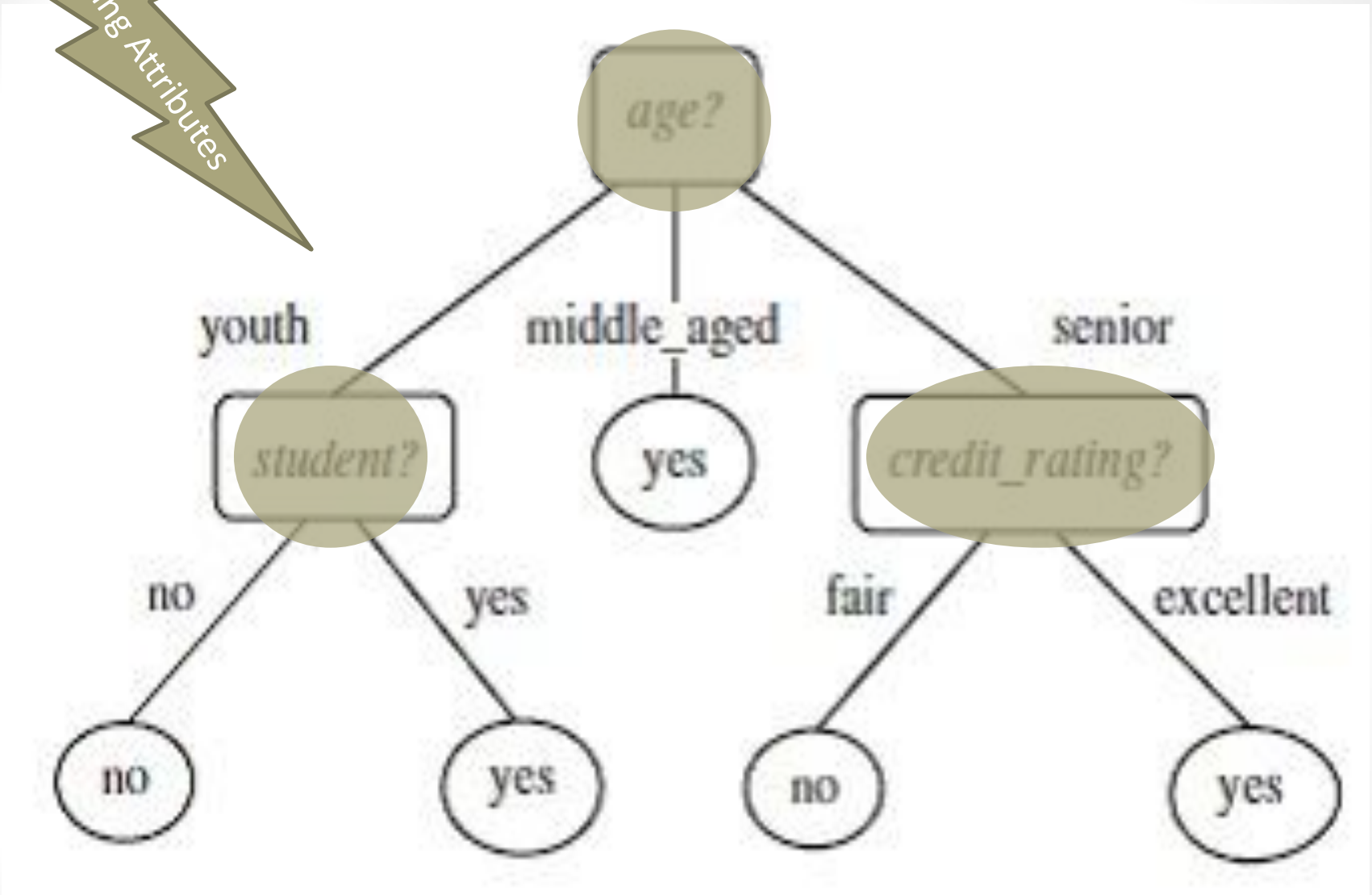


TREE PRUNING

Tree Induction

1. Take a set of pre-classified instances as inputs
2. Decide which attributes are best to split on
3. Split the dataset
4. Recurse on the resulting split datasets until all training instances are categorized – (includes pruning: removing unnecessary structures to prevent over-fitting)

Splitting Attributes



Dataset – Training Set

Individual	Age	Student ?	Credit Rating	Buys Computer?
Bruce Wayne	Middle Aged	N/A	Does Not Need	Yes
Steve Rogers	Youth	No	N/A	No
James Barnes	Youth	No	N/A	No
Tony Stark	Middle Aged	N/A	Does Not Need	Yes
Peter Parker	Youth	Yes	N/A	Yes
THE Alfred	Senior	N/A	Excellent	Yes
Some Guy	Senior	N/A	Fair	No

Construct the Tree

Dataset – Test Set

Individual	Age	Student ?	Credit Rating	Buys Computer?
Superman	Middle Aged	N/A	N/A	?
Natasha Romanoff	Youth	No	N/A	?
Rando 1	Middle Aged	N/A	N/A	?
Rando 2	Youth	Yes	N/A	?
Rando 3	Senior	N/A	Fair	?

Testing Our Accuracy…

Individual	Age	Student ?	Credit Rating	Buys Computer?
Superman	Middle Aged	N/A	N/A	Yes
Natasha Romanoff	Youth	No	N/A	No
Rando 1	Middle Aged	N/A	N/A	Yes
Rando 2	Youth	Yes	N/A	Yes
Rando 3	Senior	N/A	Fair	No