

The Fairness Friends:



A Story About Shapley Values

**In a colorful playground
lived five friends: Alex,
Bentley, Casey, Dana, and
Ellis.**

**They loved to build
amazing sandcastles
together!**



**One sunny day, they built the
BIGGEST sandcastle ever!**

**It had towers, and bridges, and
even a moat filled with
pretend water.**

**"We did it!" they cheered. "But
wait..."**

**"Who helped the most?"
wondered Alex.**





"I added the tallest tower," said Bentley.

"I dug the deepest moat," said Casey.

"I smoothed all the walls," said Dana.

**"I found the perfect sticks for the flags,"
said Ellis.**

**They all helped differently, but how much
did each friend matter?**



The playground fairy
appeared in a shimmer of
light.

"To find who helped how
much, we need to play the
Shapley game!" she said with
a twinkle.

"What's that?" asked the
friends.

The Shapley game is about fairness - explained the fairy.

"We'll see what happens when each friend joins the building team."

"Imagine all the ways you could have built the castle, with different friends working together!"



First, the fairy waved her wand.

**What if only Alex built alone?
[Small sandpile]**

**What if only Bentley built alone?
[Another small sandpile]**

**What if only Alex and Bentley built
together? [Slightly bigger pile with a
small tower]**





The fairy kept waving her wand, showing many different groups.

Sometimes Casey, Dana, and Ellis built together. [Half-finished castle]

Sometimes Alex, Bentley, and Dana built together. [Different half-finished castle]

She showed ALL the possible groups of friends!

"Now we can see what each friend adds when they join a group," said the fairy.

"When Alex joins any group, the castle gets better in their special way."

"When Bentley joins, the castle gets towers."

"Each friend makes a different kind of difference!"



The fairy drew sparkly numbers in the air.

"By looking at ALL the different groups, we can see exactly how much each friend matters to the final sandcastle."

"This is called a Shapley Value – it's the fair way to measure how important each friend is!"





**The fairy showed them their
Shapley Values:**

Alex: (helped build the base)

**Bentley: (added the tallest
towers)**

**Casey: (created the perfect
moat)**

Dana: (smoothed the walls)

Ellis: (found perfect decorations)



The friends understood now.

It wasn't about who helped most.

It was about understanding how each friend contributed in their own special way.

-"Thank you, Shapley Fairy!" they said.

From that day on, whenever the friends built anything together, they remembered the Shapley game.

They could see how everyone's contribution mattered, even when they contributed differently.





And that's the magic of Shapley Values!

They help us understand how each part works together to create something wonderful - whether it's a sandcastle, a computer program, or anything else we build together!

The end

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