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CAD

CHAPTER 1 MODIFYING 3D SHAPES

Dive deeper into Fusion 360 with the 3D pattern command and advanced modeling techniques. This chapter explores creating complex patterns, using the 3D pattern tool effectively, and applying advanced techniques to create intricate designs. You'll enhance your modeling skills by learning about parametric modeling, direct modeling, and sculpting.

CHAPTER 2 MODIFICATION COMMANDS

Learn to modify existing models in Fusion 360 using a variety of commands. This chapter covers the use of commands such as Move, Rotate, Scale, and Mirror. You'll understand how to manipulate parts and components within your design to achieve the desired modifications and improvements.

CHAPTER 3 FUN WITH FACE AND BODY COMMANDS

In this chapter, you will explore three essential commands in Fusion 360: Replace, Split Face, and Split Body. You'll learn how to replace components, split faces for detailed editing, and split bodies for creating separate parts. These tools will help you refine and customize your models with precision.

CHAPTER 4 SPLITTING, MOVING, ALIGNING, AND DELETING

Expand your knowledge of Fusion 360 with the Silhouette Split, Move and Copy, Align, and Delete commands. This chapter explains how to use these commands to create detailed modifications, align components accurately, and manage your design's structure effectively.

PYTHON

CHAPTER 5 ADVANCED PYTHON CONCEPTS

This chapter introduces advanced Python programming concepts. You'll learn about decorators, generators, context managers, and more. These concepts will help you write more efficient and readable code, and prepare you for complex programming tasks.

CHAPTER 6 LISTS IN PYTHON

This chapter covers the creation, manipulation, and various operations that can be performed on lists, a fundamental data structure in Python. It delves into methods for adding, removing, and accessing elements and more advanced topics like list comprehension and slicing.

CHAPTER 7 LEARN ABOUT TUPLES AND DICTIONARIES

This chapter introduces tuples and dictionaries, two essential Python data structures. It explains their unique properties, how to create and use them, and the various methods available for accessing and manipulating their elements.

CHAPTER 8 LAMBDA FUNCTIONS AND EXCEPTION HANDLING

This chapter explores the use of lambda functions for creating small, anonymous functions in Python, emphasizing their syntax and applications. It also covers types of errors, and exception handling techniques, detailing how to manage and respond to errors gracefully using try, except, and finally blocks.

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CHAPTER 9 UNDERSTANDING AND CREATING PYTHON MODULES

This chapter explains the concept of modules in Python, showcasing how they help in organizing and reusing code efficiently. It guides readers through the process of creating custom modules, importing them, and using built-in modules to enhance their programs.

CHAPTER 10 PYTHON LIBRARIES - NumPy AND PANDAS

This chapter delves into the powerful data manipulation and analysis capabilities of the NumPy and pandas libraries. It provides an overview of their core features, including array operations with NumPy and data handling with pandas, to help users efficiently process and analyze large datasets.

CHAPTER 11 PYTHON LIBRARIES - MATPLOTLIB AND SciPy

This chapter introduces the Matplotlib and SciPy libraries, which are essential for data visualization and scientific computing in Python. It covers how to create various types of plots with Matplotlib and leverage SciPy's extensive range of scientific and technical computing tools.

CHAPTER 12 FILE HANDLING IN PYTHON

This chapter covers how to open, read, write, and close files using built-in Python functions. It explains the different file modes, such as read ('r'), write ('w'), and append ('a'), and demonstrates handling exceptions to ensure safe and efficient file operations.

CHAPTER 13 DEBUGGING IN PYTHON

The chapter "Debugging in Python" introduces methods and tools for identifying and fixing errors in Python code, emphasizing the use of print statements, logging, and interactive debugging with tools like pdb. It covers common debugging techniques, error handling, and strategies for troubleshooting to improve code reliability and performance.

CHAPTER 14 CODING PRACTICE IN PYTHON

This chapter covers various advanced Python topics, including file handling, abstraction, garbage collection, and more. You'll learn about inplace operators, type conversion, string formatting, and recursion, equipping you with the knowledge to handle complex programming tasks.

CHAPTER 15 CAPSTONE PROJECT - SNAKE GAME DESIGN

In the final chapter, you'll apply everything you've learned to design and implement a classic Snake game in Python. This capstone project will consolidate your programming skills, from basic concepts to advanced techniques, culminating in a functional and enjoyable game.