Function Name: is_point_in_polygon

Description:

Determines if a given point lies inside a polygon using the ray-casting algorithm. The polygon is represented as a list of vertices, with each vertex being a tuple of (x,y) coordinates. The function returns “True” if the point is inside the polygon and “False” otherwise.

Algorithm:

The ray-casting algorithm works by casting a horizontal ray from the point and counting how many times the ray intersects the edges of the polygon. If the number of intersections is odd, the point is inside the polygon; if even, the point is outside.

Parameters:

- x: The x-coordinate of the point to check.
- y: The y-coordinate of the point to check.
- Polygon (list of tuples): A list of (x,y) coordinates representing the vertices of the polygon. The polygon must have at least 3 vertices.

Returns:

Returns “True” if the point is inside the polygon, otherwise “False”.

Edge Cases:

- Points that lie exactly on a polygon edge are considered to be **inside** the polygon.
- The polygon must have at least 3 vertices to form a valid closed shape. Otherwise, the function may return incorrect results.