CS133 Lab 6– Convex Polygon Intersection

Objective

- Compute all intersection points between two Convex Polygons.

Detailed Requirements

Use the stub code provided to you and implement all the TODOs to implement and test the following functions.

Functions

- `std::pair<int, int> findTopAndBottomPoints(const Polygon& p)`
  Finds the index of the top and bottom points of a polygon.
- `void computeLeftLeftIntersection(const Polygon& p1, std::pair<int, int> tb1, const Polygon& p2, std::pair<int, int> tb2, std::vector<IntersectionPoint>& intersections)`
  Finds the intersection points between the two left halves of two convex polygons.
- `void computeRightRightIntersection(const Polygon& p1, std::pair<int, int> tb1, const Polygon& p2, std::pair<int, int> tb2, std::vector<IntersectionPoint>& intersections)`
  Finds the intersection points between the two right halves of two convex polygons.
- `void computeLeftRightIntersection(const Polygon& p1, std::pair<int, int> tb1, const Polygon& p2, std::pair<int, int> tb2, std::vector<IntersectionPoint>& intersections)`
  Finds the intersection points between the left half of the first polygon and the right half of the second polygon.
- `void computeRightLeftIntersection(const Polygon& p1, std::pair<int, int> tb1, const Polygon& p2, std::pair<int, int> tb2, std::vector<IntersectionPoint>& intersections)`
  Finds the intersection points between the right half of the first polygon and the left half of the second polygon.
- `void findIntersectionPoints(const Polygon& p1, const Polygon& p2, std::vector<IntersectionPoint>& intersections)`
  Finds all the intersection points

Feel free to add any supporting functions as you see appropriate.

Examples

You can use the following polygons to test your code. P1 and P2 are already included in the code and you can similarly add the others.