



Assignment No. 02  
SEMESTER Spring2013  
CS602- Computer Graphics

Total Marks: 20

Due Date:  
**08/05/2013.**

**Instructions**

Please read the following instructions carefully before solving & submitting assignment:

**It should be clear that your assignment will not get any credit (zero marks) if:**

- The assignment is submitted after due date.
- The submitted assignment does not open or file corrupt.
- The assignment is full or partially copied (from other student or ditto copy from handouts or internet).
- Student ID is not mentioned in the assignment File or name of file is other than student ID.
- The assignment is not submitted in .doc / .docx (MS Word) format.

**Uploading instructions**

Your Submission must include:

1. MS Word file.

**Objective**

The objective of this assignment is

- To make you understand the concept and application of Scan Line Algorithm for polygon filling.

**Important Requirements and Instructions:**

1. You are not allowed to copy it from internet. In that case no marks shall be awarded.
2. Same assignment of two or more students shall be considered cheating case and they will get straight zero marks.
3. Assignment last date is **08/05/2013**..Any lame excuses will not be accepted.
4. We will not accept assignment through email in any case. Be careful.

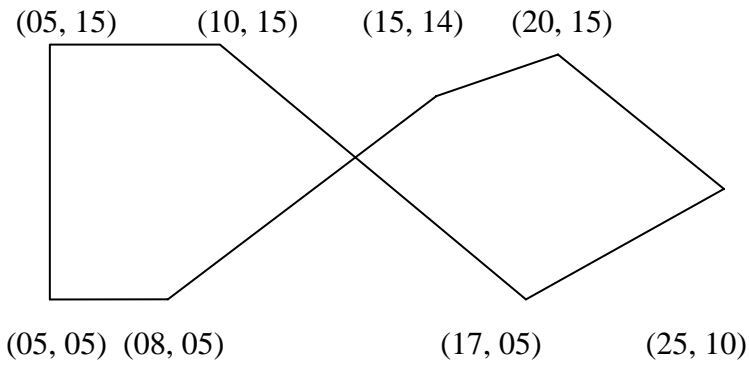
For any query about the assignment, contact at [cs602@vu.edu.pk](mailto:cs602@vu.edu.pk)

**GOOD LUCK**

Answer the following question.

**Question:**

Following is the diagram of polygon. Use the Scan Line Algorithm for polygon filling and fill the respective tables for each iteration given below.



**All Edge Table: // 2 marks**

| INDEX |   | Y-MIN | Y-MAX | X-VAL | 1/m |
|-------|---|-------|-------|-------|-----|
| 0     | → |       |       |       |     |
| 1     | → |       |       |       |     |
| 2     | → |       |       |       |     |
| 3     | → |       |       |       |     |
| 4     | → |       |       |       |     |
| 5     | → |       |       |       |     |
| 6     | → |       |       |       |     |
| 7     | → |       |       |       |     |

**Global Edge Table: // 4 marks**

| INDEX |   | Y-MIN | Y-MAX | X-VAL | 1/m |
|-------|---|-------|-------|-------|-----|
| 0     | → |       |       |       |     |
| 1     | → |       |       |       |     |
| 2     | → |       |       |       |     |
| 3     | → |       |       |       |     |
| 4     | → |       |       |       |     |
| 5     | → |       |       |       |     |
| 6     | → |       |       |       |     |
| 7     | → |       |       |       |     |

**Active Edge Table initialization: // 4 marks**

| Active Edge Table |   |       |       | Global Edge Table |       |  |       |       |       |     |
|-------------------|---|-------|-------|-------------------|-------|--|-------|-------|-------|-----|
| INDEX             |   | Y-MAX | X-VAL | 1/m               | INDEX |  | Y-MIN | Y-MAX | X-VAL | 1/m |
| 0                 | → |       |       |                   | →     |  |       |       |       |     |
| 1                 | → |       |       |                   | →     |  |       |       |       |     |
| 2                 | → |       |       |                   | →     |  |       |       |       |     |
| 3                 | → |       |       |                   | →     |  |       |       |       |     |
| 4                 | → |       |       |                   | →     |  |       |       |       |     |
| 5                 | → |       |       |                   | →     |  |       |       |       |     |
| 6                 | → |       |       |                   | →     |  |       |       |       |     |
| 7                 | → |       |       |                   | →     |  |       |       |       |     |

**Scanline:5 // 2 marks**

| Active Edge Table |   |       |       | Global Edge Table |       |  |       |       |       |     |
|-------------------|---|-------|-------|-------------------|-------|--|-------|-------|-------|-----|
| INDEX             |   | Y-MAX | X-VAL | 1/m               | INDEX |  | Y-MIN | Y-MAX | X-VAL | 1/m |
| 0                 | → |       |       |                   | →     |  |       |       |       |     |
| 1                 | → |       |       |                   | →     |  |       |       |       |     |
| 2                 | → |       |       |                   | →     |  |       |       |       |     |
| 3                 | → |       |       |                   | →     |  |       |       |       |     |
| 4                 | → |       |       |                   | →     |  |       |       |       |     |
| 5                 | → |       |       |                   | →     |  |       |       |       |     |
| 6                 | → |       |       |                   | →     |  |       |       |       |     |
| 7                 | → |       |       |                   | →     |  |       |       |       |     |

**Scanline:9// 2 marks**

| Active Edge Table |   |       |       | Global Edge Table |       |  |       |       |       |     |
|-------------------|---|-------|-------|-------------------|-------|--|-------|-------|-------|-----|
| INDEX             |   | Y-MAX | X-VAL | 1/m               | INDEX |  | Y-MIN | Y-MAX | X-VAL | 1/m |
| 0                 | → |       |       |                   | →     |  |       |       |       |     |
| 1                 | → |       |       |                   | →     |  |       |       |       |     |
| 2                 | → |       |       |                   | →     |  |       |       |       |     |
| 3                 | → |       |       |                   | →     |  |       |       |       |     |
| 4                 | → |       |       |                   | →     |  |       |       |       |     |
| 5                 | → |       |       |                   | →     |  |       |       |       |     |
| 6                 | → |       |       |                   | →     |  |       |       |       |     |
| 7                 | → |       |       |                   | →     |  |       |       |       |     |

**Scanline:10 // 2 marks**

| Active Edge Table |   |       |       | Global Edge Table |       |   |       |       |       |     |
|-------------------|---|-------|-------|-------------------|-------|---|-------|-------|-------|-----|
| INDEX             |   | Y-MAX | X-VAL | 1/m               | INDEX |   | Y-MIN | Y-MAX | X-VAL | 1/m |
| 0                 | — | →     |       |                   | —     | → |       |       |       |     |
| 1                 | — | →     |       |                   | —     | → |       |       |       |     |
| 2                 | — | →     |       |                   | —     | → |       |       |       |     |
| 3                 | — | →     |       |                   | —     | → |       |       |       |     |
| 4                 | — | →     |       |                   | —     | → |       |       |       |     |
| 5                 | — | →     |       |                   | —     | → |       |       |       |     |
| 6                 | — | →     |       |                   | —     | → |       |       |       |     |
| 7                 | — | →     |       |                   | —     | → |       |       |       |     |

**Scanline:13// 2 marks**

| Active Edge Table |   |       |       | Global Edge Table |       |   |       |       |       |     |
|-------------------|---|-------|-------|-------------------|-------|---|-------|-------|-------|-----|
| INDEX             |   | Y-MAX | X-VAL | 1/m               | INDEX |   | Y-MIN | Y-MAX | X-VAL | 1/m |
| 0                 | — | →     |       |                   | —     | → |       |       |       |     |
| 1                 | — | →     |       |                   | —     | → |       |       |       |     |
| 2                 | — | →     |       |                   | —     | → |       |       |       |     |
| 3                 | — | →     |       |                   | —     | → |       |       |       |     |
| 4                 | — | →     |       |                   | —     | → |       |       |       |     |
| 5                 | — | →     |       |                   | —     | → |       |       |       |     |
| 6                 | — | →     |       |                   | —     | → |       |       |       |     |
| 7                 | — | →     |       |                   | —     | → |       |       |       |     |

**Scanline:14 // 2 marks**

| Active Edge Table |   |       |       | Global Edge Table |       |   |       |       |       |     |
|-------------------|---|-------|-------|-------------------|-------|---|-------|-------|-------|-----|
| INDEX             |   | Y-MAX | X-VAL | 1/m               | INDEX |   | Y-MIN | Y-MAX | X-VAL | 1/m |
| 0                 | — | →     |       |                   | —     | → |       |       |       |     |
| 1                 | — | →     |       |                   | —     | → |       |       |       |     |
| 2                 | — | →     |       |                   | —     | → |       |       |       |     |
| 3                 | — | →     |       |                   | —     | → |       |       |       |     |
| 4                 | — | →     |       |                   | —     | → |       |       |       |     |
| 5                 | — | →     |       |                   | —     | → |       |       |       |     |
| 6                 | — | →     |       |                   | —     | → |       |       |       |     |
| 7                 | — | →     |       |                   | —     | → |       |       |       |     |

**Note:**

1. No explanation is required only fill the given tables. In case the field is empty in table enter "Nil".
2. Only show the steps by filling the given tables in Assignment. No other tables for any other step are required.

**Lectures Covered: This assignment covers Lecture # 07-11**

**Deadline**

Your assignment must be uploaded/submitted at or before **08/05/2013**.