

## Digital System Design Project 1 – ROBDD Generation

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Test1.PLA file :

Boolean function :  $F = ab'd + a'c' + bcd' + cd$

Content :

```
.i 4
.o 1
.ilb a b c d
.ob F
.p 4
10-1 1
0-0- 1
-110 1
--11 1
.e
```

Out1.dot file:

Content:

```
digraph ROBDD {
    {rank=same 1}
    {rank=same 2 3}
    {rank=same 4 7}
    {rank=same 9}

    0 [label=0, shape=box]
    1 [label="a"]
    2 [label="b"]
    3 [label="b"]
    4 [label="c"]
    7 [label="c"]
    9 [label="d"]
    16 [label=1, shape=box]

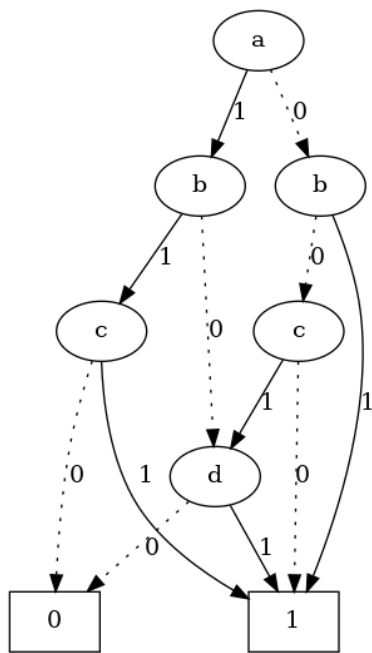
    1 -> 2 [label="0", style=dotted]
    1 -> 3 [label="1", style=solid]
    2 -> 4 [label="0", style=dotted]
    2 -> 16 [label="1", style=solid]
    3 -> 9 [label="0", style=dotted]
```

```

3 -> 7 [label="1", style=solid]
4 -> 16 [label="0", style=dotted]
4 -> 9 [label="1", style=solid]
7 -> 0 [label="0", style=dotted]
7 -> 16 [label="1", style=solid]
9 -> 0 [label="0", style=dotted]
9 -> 16 [label="1", style=solid]
}

```

Out1.png :




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Test2.PLA file:

Boolean function :  $F = a b'e' + a'cde' + a'ce + a'be + ac'd + b'c$

Content :

```

.i 5
.o 1
.ilb a b c d e
.ob F
.p 6
10--0 1
0-110 1
0-1-1 1

```

01--1 1  
1-01- 1  
-01-- 1  
.e

Out2.dot file :

Content:

```
digraph ROBDD {  
    {rank=same 1}  
    {rank=same 2 3}  
    {rank=same 4 5 6 7}  
    {rank=same 11 12 14}  
    {rank=same 20 24}
```

```
0 [label=0, shape=box]  
1 [label="a"]  
2 [label="b"]  
3 [label="b"]  
4 [label="c"]  
5 [label="c"]  
6 [label="c"]  
7 [label="c"]  
11 [label="d"]  
12 [label="d"]  
14 [label="d"]  
20 [label="e"]  
24 [label="e"]  
32 [label=1, shape=box]
```

```
1 -> 2 [label="0", style=dotted]  
1 -> 3 [label="1", style=solid]  
2 -> 4 [label="0", style=dotted]  
2 -> 5 [label="1", style=solid]  
3 -> 6 [label="0", style=dotted]  
3 -> 7 [label="1", style=solid]  
4 -> 0 [label="0", style=dotted]  
4 -> 32 [label="1", style=solid]  
5 -> 20 [label="0", style=dotted]
```

```

5 -> 11 [label="1", style=solid]
6 -> 12 [label="0", style=dotted]
6 -> 32 [label="1", style=solid]
7 -> 14 [label="0", style=dotted]
7 -> 0 [label="1", style=solid]
11 -> 20 [label="0", style=dotted]
11 -> 32 [label="1", style=solid]
12 -> 24 [label="0", style=dotted]
12 -> 32 [label="1", style=solid]
14 -> 0 [label="0", style=dotted]
14 -> 32 [label="1", style=solid]
20 -> 0 [label="0", style=dotted]
20 -> 32 [label="1", style=solid]
24 -> 32 [label="0", style=dotted]
24 -> 0 [label="1", style=solid]
}

```

Out2.png :

