Given the following informations, find optimal BST using DP.

Value	60	30	20	50	40
Probability	0.15	0.25	0.17	0.13	0.30

$$C[i,j] = \min_{i \le k \le j}\{C[i,k-1] + C[k+1,j]\} + \sum_{s=i}^{j} p_s$$

$$C[i,j] = p[i] \quad \text{for } 1 <= i <= n$$

0.15	0.25	0.17	0.13	0.30
1	2	3	4	5

i \ j	0	1	2	3	4	5
1	0	0.15	0.55	0.89	1.28	2.11
2		0	0.25	0.62	0.93	1.66
3			0	0.17	0.43	1.03
4				0	0.13	0.56
5					0	0.30
6						0

i \ j	0	1	2	3	4	5
1	0	1	2	2	2	3
2		0	2	2	3	3
3			0	3	3	5
4				0	4	5
5					0	5
6						0

$k=1$

$C[i,j] = \min[1,1-1] + [1+1,2] + 0.4$

$= C[1,0] + [2,2] + 0.4$

$= 0 + 0.25 + 0.4$

$C[1,2] = 0.65$

$k=2$

$C[i,j] = \min[1,2-1] + [2+1,2] + 0.4$

$= C[1,1] + [3,2] + 0.4$

$= 0.15 + 0 + 0.4$

$\boxed{C[1,2] = 0.55}$

$k=2$

$C[i,j] = \min[2,2-1] + [2+1,3] + 0.42$

$= C[2,1] + [3,3] + 0.42$

$= 0 + 0.17 + 0.42$

$\boxed{C[2,3] = 0.62}$

$k=3$

$C[i,j] = \min[2,3-1] + [3+1,3] + 0.42$

$= C[2,2] + [4,3] + 0.42$

$= 0.25 + 0 + 0.42$

$= 0.67$

$k=3$

$C[i,j] = \min[3,3-1] + [3+1,4] + 0.3$

$= C[3,2] + [4,4] + 0.3$

$= 0 + 0.13 + 0.3$

$\boxed{C[3,4] = 0.43}$

k = 4

$C[\overset{i}{3},\overset{j}{4}] = \min[3, 4-1] + [4+1, 4] + 0.3$

$= C[3,3] + [5,4] + 0.3$

$= 0.17 + 0 + 0.3$

$C[3,4] = 0.47$

k = 4

$C[\overset{i}{4},\overset{j}{5}] = \min[4, 4-1] + [4+1, 5] + 0.43$

$= C[4,3] + [5,5] + 0.43$

$= 0 + 0.30 + 0.43$

$C[4,5] = 0.73$

k = 5

$C[\overset{i}{4},\overset{j}{5}] = \min[4, 5-1] + [5+1, 5] + 0.43$

$= C[4,4] + [6,5] + 0.43$

$= 0.13 + 0 + 0.43$

$\boxed{C[4,5] = 0.56}$

k = 1

$C[\overset{i}{1},\overset{j}{3}] = \min[1, 1-1] + [1+1, 3] + 0.57$

$= C[1,0] + [2,3] + 0.57$

$= 0 + 0.62 + 0.57$

$C[1,3] = 1.19$

k = 2

$C[\overset{i}{1},\overset{j}{3}] = \min[1, 2-1] + [2+1, 3] + 0.57$

$= C[1,1] + [3,3] + 0.57$

$= 0.15 + 0.17 + 0.57$

$\boxed{C[1,3] = 0.89}$

k = 3

$C[i,j] = \min[1, 3-1] + [3+1, 3] + 0.57$

$= C[1,2] + [4,3] + 0.57$

$= 0.55 + 0 + 0.57$

$C[1,3] = 1.12$

k = 2

$C[i,j] = \min[1, 2-1] + [2+1, 4] + 0.55$

$= C[1,1] + [3,4] + 0.55$

$= 0.15 + 0.43 + 0.55$

$C[2,4] = 1.13$

k = 3

$C[i,j] = \min[2, 3-1] + [3+1, 4] + 0.55$

$= C[2,2] + [4,4] + 0.55$

$= 0.25 + 0.13 + 0.55$

$\boxed{C[2,4] = 0.93}$

k = 4

$C[i,j] = \min[2, 4-1] + [4+1, 4] + 0.55$

$= C[2,3] + [5,4] + 0.55$

$= 0.62 + 0 + 0.55$

$C[2,4] = 1.17$

k = 3

$C[i,j] = \min[3, 3-1] + [3+1, 5] + 0.6$

$= C[3,2] + [4,5] + 0.6$

$= 0 + 0.56 + 0.6$

$C[3,5] = 1.16$

k = 4

$c[i,j] = \min[3, 4-1] + [4+1, 5] + 0.6$

$= c[3,3] + [5,5] + 0.6$

$= 0.17 + 0.30 + 0.6$

$c[3,5] = 1.07$

k = 5

$c[i,j] = \min[3, 5-1] + [5+1, 5] + 0.6$

$= c[3,4] + [6,5] + 0.6$

$= 0.43 + 0 + 0.6$

$c[3,5] = 1.03$

k = 1

$c[i,j] = \min[1, 1-1] + [1+1, 4] + 0.7$

$= c[1,0] + [2,4] + 0.7$

$= 0 + 0.93 + 0.7$

$c[1,4] = 1.63$

k = 2

$c[i,j] = \min[1, 2-1] + [2+1, 4] + 0.7$

$= c[1,1] + [3,4] + 0.7$

$= 0.15 + 0.43 + 0.7$

$c[1,4] = 1.28$

k = 3

$c[i,j] = \min[1, 3-1] + [3+1, 4] + 0.7$

$= c[1,2] + [4,4] + 0.7$

$= 0.55 + 0.13 + 0.7$

$c[1,4] = 1.38$

k = 4

$$C[i,j] = \min[1, 4-1] + [4+1, 4] + 0.7$$

$$= C[1,3] + [5,4] + 0.7$$

$$= 0.89 + 0 + 0.7$$

$$C[1,4] = 1.59$$

k = 2

$$C[i,j] = \min[2, 2-1] + [2+1, 5] + 0.85$$

$$= C[2,1] + [3,5] + 0.85$$

$$= 0 + 1.03 + 0.85$$

$$C[2,5] = 1.88$$

k = 3

$$C[i,j] = \min[2, 3-1] + [3+1, 5] + 0.85$$

$$= C[2,2] + [4,5] + 0.85$$

$$= 0.25 + 0.56 + 0.85$$

$$C[2,5] = 1.66$$

k = 4

$$C[i,j] = \min[2, 4-1] + [4+1, 5] + 0.85$$

$$= C[2,3] + [5,5] + 0.85$$

$$= 0.62 + 0.30 + 0.85$$

$$C[2,5] = 1.77$$

k = 5

$$C[i,j] = \min[2, 5-1] + [5+1, 5] + 0.85$$

$$= C[2,4] + [6,5] + 0.85$$

$$= 0.93 + 0 + 0.85$$

$$C[2,5] = 1.78$$

$C\begin{bmatrix} i \\ 1,5 \end{bmatrix} = \min[1,1-1] + [1+1,5] + 1$ **k = 1**

$= C[1,0] + [2,5] + 1$

$= 0 + 1.66 + 1$

$C[1,5] = 2.66$

$C\begin{bmatrix} i \\ 1,5 \end{bmatrix} = \min[1,2-1] + [2+1,5] + 1$ **k = 2**

$= C[1,1] + [3,5] + 1$

$= 0.15 + 1.03 + 1$

$C[1,5] = 2.18$

$C\begin{bmatrix} i \\ 1,5 \end{bmatrix} = \min[1,3-1] + [3+1,5] + 1$ **k = 3**

$= C[1,2] + [4,5] + 1$

$= 0.55 + 0.56 + 1$

$\boxed{C[1,5] = 2.11}$

$C\begin{bmatrix} i \\ 1,5 \end{bmatrix} = \min[1,4-1] + [4+1,5] + 1$ **k = 4**

$= C[1,3] + [5,5] + 1$

$= 0.89 + 0.30 + 1$

$C[1,5] = 2.19$

$C\begin{bmatrix} i \\ 1,5 \end{bmatrix} = \min[1,5-1] + [5+1,5] + 1$ **k = 5**

$= C[1,4] + [6,5] + 1$

$= 1.28 + 0 + 1$

$C[1,5] = 2.28$