/\*\*

\* fajie

\* To calculate cmg based on pairwise loss function type

\* **@param** losstype

\* **@param** xuij

\* **@return**

\*/

**protected** **double** getGradMag(**int** losstype, **double** xuij) {

**double** z=1.0;

**double** cmg=0;

**switch** (losstype) {

**case** 0:// Hinge loss

**if** (z \* xuij <= 1)

cmg = z;

**break**;

**case** 1:// Rennie loss

**if** (z \* xuij <= 0)

cmg = -z;

**else** **if** (z \* xuij <= 1)

cmg = (1 - z \* xuij) \* (-z);

**else**

cmg = 0;

cmg = -cmg;

**break**;

**case** 2:// logistic loss, BPR

cmg = g(-xuij);

**break**;

**case** 3:// Frank loss

cmg = Math.*sqrt*(g(xuij)) / (1 + Math.*exp*(xuij));

**break**;

**case** 4:// Exponential loss

cmg = Math.*exp*(-xuij);

**break**;

**case** 5://quadratically smoothed

**if** ( xuij <= 1)

cmg = 0.5\*(1-xuij);

**break**;

**default**:

**break**;

}

**return** cmg;

}