```
#include <stdio.h>
#define MAX_VARIABLES (3126) // 1~ 100000 id
unsigned int saveIdBit[MAX_VARIABLES];
unsigned int mask[33];
void setId(int Id)
          int flndex=0, slndex=0;
          fIndex = (Id-1)/32;
          sIndex = Id \% 32;
          if( sIndex == 0 )
                    sIndex = 32;
          saveIdBit[fIndex] = saveIdBit[fIndex] | mask[sIndex];
}
void unsetId(int Id)
{
          int flndex=0, slndex=0;
          fIndex = (Id-1)/32;
          sIndex = Id \% 32;
          if( sIndex == 0 )
                    sIndex = 32;
          saveIdBit[fIndex] = saveIdBit[fIndex] & ~mask[sIndex];
}
unsigned int bc1(unsigned int v)
          unsigned int c;
          c = (v \& 0x55555555) + ((v >> 1) \& 0x55555555);
          c = (c \& 0x33333333) + ((c >> 2) \& 0x33333333);
```

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          c = (c \& 0x0F0F0F0F) + ((c >> 4) \& 0x0F0F0F0F);
          c = (c \& 0x00FF00FF) + ((c >> 8) \& 0x00FF00FF);
          c = (c \& 0x0000FFFF) + ((c >> 16) \& 0x0000FFFF);
          return c;
}
unsigned int bc3(unsigned int v)
          unsigned int c;
          c = (v \& 0x55555555) + ((v > 1) \& 0x55555555);
          c = (c \& 0x33333333) + ((c>>2) \& 0x33333333);
          c = (c \& 0x0f0f0f0f) + ((c>>4) \& 0x0f0f0f0f);
          c = (c \& 0x00ff00ff) + ((c >> 8) \& 0x00ff00ff);
          c = (c \& 0x0000ffff) + ((c > 16) \& 0x0000ffff);
          return c;
}
int bc2(unsigned int i)
   i = i - ((i >> 1) \& 0x55555555);
   i = (i \& 0x33333333) + ((i >> 2) \& 0x33333333);
   i = (i + (i >> 4)) & 0x0f0f0f0f;
   i = i + (i >> 8);
   i = i + (i >> 16);
   return i & 0x3f;
}
int main(int argc, char** argv)
          //make mask
          for(register int i=1; i<=32; i++)
                    mask[i] = 1 < < (i-1);
          setId(9999);
          setId(32);
          setId(31);
          setId(28);
          unsetId(28);
```

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```
printf(" test - %d ₩n",bc3(saveIdBit[0]));
return 0;
}
```