TP 1 : tableaux et pointeurs

Programmation en C (LC4)

Semaine du 29 janvier 2007

1 Manipulation de la ligne de commande

▶ **Exercice 1**

```
void affichage(int n, char *tab[]){
    int i;
    for(i = 0; i < n; i++)
        printf("%s ",tab[i]);
    printf("\n");
}
```

▶ **Exercice 2**

```
void echange_mot(int i, int j, char *tab[]){
    char *tmp = tab[i];
    tab[i] = tab[j];
    tab[j] = tmp;
}
```

▶ **Exercice 3**

```
void echange_lettre(int i, int j, char *tab[]){
    char tmp = tab[i][0];
    tab[i][0] = tab[j][0];
    tab[j][0] = tmp;
}
```

▶ **Exercice 4**

2 Des images comme des tableaux

▶ **Exercice 5**

```
void miroir_vertical(int width, int height, int image[]){
    int x, y, tmp;
    for(y = 0; y < height; y++){
        for(x = 0; x < width/2; x++){
            tmp = image[x + width*y];
            image[x + width*y] = image[width-1-x + width*y];
            image[width-1-x + width*y] = tmp;
        }
    }
}
```

▶ **Exercice 6**

```
void miroir_horizontal(int width, int height, int image[]){
    int x, y, tmp;
    for(y = 0; y < height/2; y++){
```

```
        for(x = 0; x < width; x++){
            tmp = image[x + width*y];
            image[x + width*y] = image[x + width*(height-1-y)];
            image[x + width*(height-1-y)] = tmp;
        }
    }
}
```

► **Exercice 7**

```
// calcule la moyenne des 8 points de img[]
// qui sont autour du point (x,y) et de (x,y)
int moyenne(int w, int h, int x, int y, int img[]){
    return (( img[(x-1) + w*(y-1)] + img[(x-1) + w*y] + img[(x-1) + w*(y+1)] +
              img[ x + w*(y-1)] + img[ x + w*y] + img[ x + w*(y+1)] +
              img[(x+1) + w*(y-1)] + img[(x+1) + w*y] + img[(x+1) + w*(y+1)] )
             /9);
}


void rend_flou(int w, int h, int src[], int dst[]){
    int x, y;
    for(y = 0; y < h; y++){
        for(x = 0; x < w; x++){
            if( y==0 || x==0 || y==(h-1) || x==(w-1) )
                dst[x + w*y] = src[x + w*y];
            else
                dst[x + w*y] = moyenne(w, h, x, y, src);
        }
    }
}
```