Assignment 12
On single step; prepared by Ignacio Aguilar and Daniela Lino

Copy files from /home/ignacio/labthr

Data:
Simulated data for a Maternal Model
Simulation was done using QMSim.

Data filename: newdat.txt

The phenotypes were calculated as
pheno=mean+qtl1+mat+e(i)

The newdata.txt has the following columns:

1 animal	# animal id
2 sire	# sire id
3 dam	# dam id
4 G1	# generation
5 sexo	# sex
6 mean	# mu
7 nmp1	# number of males progenies
8 nfp1	# number of females progenies
9 F1	# inbreeding
10 qtl1	# true bv direct
11 qtl2	# true bv mater
12 pheno	# mean(0.5) + qtl(d)i + qtl(m)m + e(i)
13 febv1	# ebv from qmsim direct
14 febv2	# ebv from qmsim maternal
15 e(i)	# residual simulated outside qmsim
16 mat	# qtl(m)m

1. From raw data modify renumf90 parameter file (renlab.par) according to the data file and model (use the same model as the simulated one).

2. Run renumf90 program to renumber data, pedigree file and marker data.

3. Check the renf90.par, renf90.dat and renaddxx.ped. From the renaddxx.ped file, identify genotyped animals, and check with wiki (http://nce.ads.uga.edu/wiki/doku.php?id=readme.renumf90) the content of each column.

4. Estimate variance components considering and ignoring marker information.

5. Run preGSf90 and save Hinv matrix

6. Run blupf90 using two different types of random effects: additive effect with genomic information or user_file, and check that solutions are the same.

7. Remove the phenotypic information from the 5th generation and obtain solutions from a model with marker information and with no marker information. Compute and compare correlations with true breeding values for direct and maternal effects. Hint: have renumf90 output column containing "generations" and delete records from renf90.dat phenotypes for the 5th generation.

   If generation column is number 7, this can be done with Linux tool awk:
   ```
   awk '$7!=5' renf90.dat > renf90.dat.pred
   ```

8. Take a look of the Makefile and try run programs using for example:
   ```
   make ren
   make blup
   ```