Subject: How to remove a candidate
Posted by StefanoSpataro on Wed, 27 Mar 2013 16:38:39 GMT
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Dear analysis experts,
if I check the macros in tutorials/feb12 I can see that in order to remove a candidate from a list, it is suggested to use something like:

```
 for (int ii=0;ii<l.GetLength();++ii)
 {
  if (!mcm.MctMatch(l[ii],mct))
  {
   l.Remove(l[ii]);
   removed++;
  }
 }
```

You remove the ii element.

But if I check the old macro/run/tdrct/ macros, in the analysis it is used the following:

```
    int n_removed=0;
    int ii=0;
    for (Int_t l=0;l<pp.GetLength();l++){
      ii=l-n_removed;
      if((pp[ii].GetMicroCandidate()->GetSttHits())==0){
 pp.Remove(pp[ii]);
        n_removed++;
      }
    }
```

Here you remove the ii=l-n_removed element.

It is not clear to me which is the correct way to remove elements in the candidate list. In particolar, once one element is removed, I would presume that the TCandList has 1 element less and the length decreases. If I remove the element 0, the "old" element 1 will become the new element "0", but in the for the index increases then I will analyse the "new" element 1 (old element 2) forgetting the "old" element 1 which now is 0.

Which is the correct way? or maybe it is better to create a new empty list and to fill it with the relevant candidates?
I am also wodering if the old analyses were bugged or not.

Thanks in advance.

Subject: Re: How to remove a candidate
Posted by Klaus Götzen on Wed, 27 Mar 2013 17:02:32 GMT
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Hi Stefano,

your concern ist correct. The removal process will be bugged. Let me point you to a forum message I wrote some time ago exactly concerning that topic

https://forum.gsi.de/index.php?t=tree&th=3737

To do it correctly you can either store the length of the list beforehand like

```
Int_t n=l.GetLength();
for (l=0; l<n; ++l)
{
  i = l-n_removed;
  if( ... Some criterion ...)
  {
    list.Remove( list[i] );
    n_removed++;
  }
}
```

or (suggested by Radek) loop reversely through the list with

```
for (ii=l.GetLength()-1 ; ii>=0; --ii)
```

Or, as you mention, fill a new empty list with the non-removed candidates.

Best,
Klaus

Subject: Re: How to remove a candidate
Posted by donghee on Thu, 28 Mar 2013 11:03:13 GMT
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Dear PANDAroot users,

I would like to confirm Klaus's suggestion and report to get better understanding of our example code in analysis macro directory (macro/run/tdrct/).

I have tested a function, which will remove low energetic photon in the "Neutral candidate" by EMC energy cut as an example.
This function has a bug as people mentioned because it does not look all contents inside the candidate list,
they stop before arriving end of list due to wrong count in the part of "ii=l-n_removed".
So simpy you could not reach to the end of list because will skip last part according to reduced

counts during remove process.

Quote:

```
//this method is wrong!!!
int n_removed=0; int ii=0;
for (l=0;l<neutral2.GetLength();++l) {
   ii=l-n_removed;
   if(neutral2[ii].GetMicroCandidate().GetEmcRawEnergy() < 0.01 ){
      neutral2.Remove(neutral2[ii]);
      n_removed++;
   }
}
```

So change the length as total = neutral2.Getlength(), works fine.
Quote:

```
//this method works
int total = neutral2.Getlength();
int n_removed=0; int ii=0;
for (l=0;l<total;++l) {
   ii=l-n_removed;
   if(neutral2[ii].GetMicroCandidate().GetEmcRawEnergy() < 0.01 ){
      neutral2.Remove(neutral2[ii]);
      n_removed++;
   }
}
```

In order to correct example macros in tutorials/feb12/,
one should alterantively change from [ii] to [ii--] and here you don't need to use n_removed++ any more.
This function will check all contents in the list and reach end of the list as we want.
Quote:

```
//this method is correct!!!
for (ii=0;ii<neutral3.GetLength();++ii) {
   if(neutral3[ii].GetMicroCandidate().GetEmcRawEnergy() < 0.01 ){
      neutral3.Remove(neutral3[ii--]);

   }
}
```

Many of analyzer looks and use our example macros without any doubt at the beginnig.
I think that some example codes must to be fixed at least in the pandaroot/macro/

Best wishes,

Subject: Re: How to remove a candidate
Posted by StefanoSpataro on Thu, 28 Mar 2013 13:48:39 GMT
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Hi,
I agree with Donghee that at least in the tutorial/feb12 folder the analysis macros should be corrected, so that people do not copy the wrong code supposing it is correct. Klaus, could you please fix them?

Subject: Re: How to remove a candidate
Posted by Klaus Götzen on Thu, 28 Mar 2013 14:34:42 GMT
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Hi,

I also agree with Donghee and was not aware until your message, that this problem appears in the tutorial directory. When I'm back from vacations the week after next week I'll fix things there.

Best,
Klaus

Subject: Re: How to remove a candidate
Posted by Klaus Götzen on Wed, 10 Apr 2013 06:22:46 GMT
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Hi,

I just checked in the fixed files for the tutorial. I also exchanged the electrons in the J/psi decay by muons in the example, so that the spectra look nicer.

Best,
Klaus
