Project Phase 2: Updates

Updates

10/23/2014

1. Arrays

Please linearize the arrays in IR code generation. The arrays start at index 0 - we have two types of arrays : single and multi-dimensional. Consider an array to be declared as: A[100][200]. A reference A[i][j] for this array will be translated by generating offset calculation IR to calculate offset = i * 200 + j - this access is then used in the respective array IR instruction given in the document.

2. Conditional code generation

There are two possibilities: single conditional expressions can be directly folded into the code generation as shown in the table. For example, refer to the instruction emitted for "if(a <> b) then" etc. You can do this when there is only one conditional clause. However, when you have multiple ones such as : (a < b) & (c > d), they should be evaluated as short circuit operators i.e., if (a < b) is false, we do not evaluate (c > d) but directly go to the false side of the branch. In case (a < b) is true we descend down to evaluate (c > d) and evaluate it and use its outcome to branch to the true or false side of the overall branch. Similar treatment applies to or (|) operator. In short, multiple clauses joined by & and | operators are evaluated as short-circuit cascades of branches. Refer to the lecture slides for IR-Code-generation for examples and details.