

Chess Program 8 - Inheritance Part B, Polymorphism.

1. Revert back to having your `mPtrPiece` in Chess to being a pointer of type `Piece*` instead of a pointer to type `Rook*`, but still new the piece up as a `Rook`. Notice this does not cause a compiler error. `Rook` extends `Piece`, so it's acceptable to have `Piece*` `mPtrPiece` point to a `Rook` instance. BUT, now at execution the `getSymbolAt()` method in `Piece` gets called instead of `getSymbolAt()` in `Rook`.
2. To get the compiler to call `getSymbolAt()` in `Rook` instead of the one in `Piece` simply declare `getSymbolAt()` in the `Piece` header as `virtual`. e.g.
`virtual char getSymbolAt(int row, int column);`
3. This is an example of Polymorphism. If a method is declared `virtual` the compiler checks for overriding methods in extending classes and calls those methods instead of the virtual method.
4. Go ahead and create extending classes `Knight`, `Bishop`, `Queen`, and `King` based on what you did for `Rook`.
5. In `makeChessPiece()` use a `switch()` statement to assign `mPtrPiece` to the appropriate class after asking the user for the piece type, e.g.,

```
switch (type)
{
    case ROOK:
        mPtrPiece = new Rook(row, column, type);
        break;
    case KNIGHT:
        mPtrPiece = new Knight(row, column, type);
        break;
    case BISHOP:
        mPtrPiece = new Bishop(row, column, type);
        break;
    case QUEEN:
        mPtrPiece = new Queen(row, column, type);
        break;
    case KING:
        mPtrPiece = new King(row, column, type);
        break;
}
```

1. You will need to include the headers for `Rook`, `Knight`, `Bishop`, `Queen`, `King` in `chess.cpp`.
2. Your virtual method `getSymbolAt()` in `Piece` should now never actually be called, nor logic in it used. Remove the old logic and change it to this,

```
char Piece::getSymbolAt(int indexRow, int indexColumn)
{
    return ' ';
}
```

3. Your Chess game is now fully using inherited classes and polymorphism.