Object-Oriented Programming (List 5)

Due: April 21th 2010

1. Write a function

```cpp
std::vector< unsigned int >
reverse( std::vector< unsigned int > v )
```

that reverses the vector v.

2. Write a function

```cpp
void printvector( std::vector< unsigned int > v )
```

that prints a vector as a set, using parentheses and commas. It is important that the function places parentheses and commas in the correct way.

```
{ }
{ 1 }
{ 1, 2 }
{ 1, 2, 3 }
```

3. Write a function

```cpp
std::vector< unsigned int > addvectors(
    std::vector< unsigned int > v1,
    std::vector< unsigned int > v2 );
```

that adds the vectors elementwise. You may assume that v1 and v2 have equal length. If v1 = {1, 2, 3}, and v2 = {10, 11, 12}, then the result should be {11, 13, 15}.

4. Write a function

```cpp
1
```
std::vector< unsigned int > flatten(
  std::vector< std::vector< unsigned int > > v )

that collects the elements in the vector of vectors \( v \) into a single vector.
The result of \( \{ \{ 1 \}, \{ 2, 3 \}, \{ 4 \} \} \) should be \( \{ 1, 2, 3, 4 \} \).

5. Write a function

   bool equals( std::vector< unsigned int > v1,
               std::vector< unsigned int > v2 )

   that returns \textbf{true} if the vectors \( v_1 \) and \( v_2 \) are equal.

In case you forgot:

\begin{align*}
  &v. \text{size( )} : \quad \text{Length of vector.} \\
  &v. \text{push_back( i )} : \quad \text{Append i at the end of v.} \\
  &v. \text{pop_back( )} : \quad \text{Remove last element from vector.} \\
  &v[i] : \quad \text{i-th element of vector.}
\end{align*}