DYNAMIC PROGRAMMING

Question 1

You are carrying a backpack that can only hold a limited amount of weight. Journeying through a cave you discover a pile of hidden treasure. Unfortunately, you can't carry it all with you. Select the items that have the greatest value such that the items you choose don't exceed a specified weight limit.

(a) You might consider a solution to the problem based on dynamic programming.

> An example of what your driver code *might* look like in your main function follows. You may choose how to format your output.

```
// Main Program
int main()
{
    // How many rupees is each treasure worth
    int value[] = {210, 220, 180, 120, 160, 170, 90, 40, 60, 10};
    // How heavy is each piece of treasure
    int weight[] = { 15, 12, 10, 9, 8, 7, 5, 4, 3, 1};
    // How strong are you?
    // i.e. how much weight can you carry?
    int W = 26;
    // How many items are there?
    int n = 10;

    // Output the value in rupees of what you're able to carry
    // Your output for this example should be 520
    std::cout << knapsack( weight, value, n, W ) << std::endl;
    return 0;
}
```

You should submit your solution to the D2L Dropbox for Lab 6. Please name your CPP file according to the scheme lastname_firstname_lab6.cpp.

> Here you will replace lastname and firstname with your own name.