Problem Analysis 1

When you are going on a trip and have to stay out for one or more nights you normally need to pack some luggage. The way people pack their luggage is not always the same. Some just throw their items randomly into the suitcase, while others put it nicely into to suitcase but without a specific order. And others again have a system regarding which order the items are put into the suitcase. But not having a good system in packing sometimes result in the weight being unevenly spread and there might be a lot of wasted space in the suitcase so you have to pack more bags than strictly needed. And finding ones things in a big filled suitcase can require a long search.

1.0.1 The problem

In modern society, families or groups of friends tend to take on vacation trips to other destination to relax and enjoy their vacation or explore the world [?]. With vacation trips comes packing luggage which plays a role regarding the journey. The size and weight of the luggage is determined by the time of the stay and the purpose of the trip or simply bad distribution of the bags contents.

When travelling with heavy, many, or both many and heavy bags it can be frustrating to carry ones luggages over larger distance and it can be hard to manoeuvre with large luggage if the room is permeated or just narrow in general. Even more important is that a too large or too heavy luggage can trigger a fee. The size of the fee is informed on the airlines website and can varies from airline to airline [?].

Therefore it can be an advantage to pack the bags properly and limit the choose of things to take on the journey. This chapter will document this problem and conclude that it is a problem and thereby relevant to work with.

People who are travelling with airlines and have over 23 kg in one bag will experience that they will get charge with an extra fee. This fee have been introduced so airlines bag handlers do not have to take the risk to get injuries by carry too heavy luggage.

The risk factors about luggage handling

There are 4 main risks when the airport personal are transporting your luggage from the terminal onto the plane:

- The load; The mass of the load, its size, shape, stability and grip characteristics.

- The task; The postures adopted (twisting, stooping and reaching), hand distance from lower back, vertical reach and lift distance, repetition, duration of the activity and carrying distance.

- The environment; The space available to move, floor conditions, changes in level, lightning, noise and weather conditions.

- The individual; The operator's individual capability and characteristics, their level of knowledge and experience, or underlying health problems should not be overlooked.

These risks could mean that the worker, after a long time in the job, might become unable to do his job if he does the carrying wrong e.g. using his back to carry the bags instead of the legs.

Because of the weight and size restrictions it can be difficult to pack all the cloth and accessories that were necessary to have for the trip in a limited amount of bags and it can be necessary to acquire more bags for the trip or pick less items to pack for the vacation. More luggage means a bigger cost for the flight to the desired destination. A way to dodge buying and pay for extra bags for the vacation is to pack bags more compact. This increases the bags weight. [?].

The increased weight means the bags might exceed the limit for weight and therefore triggers a fee for overweight luggage. It seems people often pack their luggage more compact instead of taking extra bags with them on vacation. General people take a lot with them on vacation or might not packed their luggage optimal [?].

[?] shows the amount fees given in context to luggage that have been registered at the U.S. airlines. Through these statistics it is possible to see that there are people that exceeds the set of limits given by the airline. A note regarding this source is that it is the fee amount is a combination of the different rules and the related fees. Therefore the statistics do not give accurate image of weight limit but more a image of that there is a problem in general with luggage exceeds the given limits.

The problem with packing luggage is applied to most kind of transport if it is train, car, or flights. But flights is the one transport were is plays biggest role for the consumer because it have economical consequences. Train and car the consumer is the only one to define how heavy luggage may be but there is restriction to how big the bags must be. For train it is 100 x 60 x 30 cm [?] for cars it is size of the car and number of passages that defines the size for how big the bags must be.

1.1 Luggage rules

1.1.1 Charter trips on air planes

Check-in luggage
Dimension limit　　　　　　　158 cm (Height+Width+Depth)
Weight limit　　　　　　　　1 suitcase x 20-23 kg

Extra luggage
Dimensions　　　　　　　　158-277 cm (Height+Width+Depth)
Weight　　　　　　　　　　20-45 kg

Items usually not allowed in the checked-in luggage:
Explosives, corrosive and flammable compounds e.g. gas, methylated spirit, paint and the like
Oxygenated, toxic and radioactive compounds
Flammable gases
Magnetic materials
Fireworks

Sedatives
Bleach
Paint

Carry on Approved items: Liquids, perfume, gel and spray – max. 100 millilitres – equal to one decilitre pr. container You are only allow to bring these containers (bottles, cans, tubes and so on), if they are contained in a transparent plastic bag, which have to be closed (1 litre bag per passenger) The bag have to be resealable.
Past security, wares can be purchased (including spirits, perfume and other liquids). Wares are handed out in sealed bags, these bags may only be opened after the final destination have been reached.
It is now a requirement that you take off your overcoat, take laptops and other larger electronic devices out of the bag before the security check-in.

Dimension limit	Height 50-55 cm + Width 40 cm + Depth 18-25 cm
Weight limits	5-8 kg

1.1.2   Rules on trains

There are different rules depending on which train company you are using.
Look at the Danish train company, DSB, for example. They have very few rules regarding the luggage you are allowed to bring with you.

Dimensions	100 x 60 x 30 cm

The only other rule is that your luggage need to be able to lie on the luggage rack or under the seat and not be bothering or putting any other person on the train in danger. [?]

Another example could be Indian Railways where the luggage is allowed to have different weight depending on which class you are on. They have no other rules regarding luggage. (http://www.trainenquiry.com/StaticContent/Railway_Amnities/E_R/LUGGAGE.aspx) [?]

1.2   Solutions on the market

The amount of programs on the market, wanting to help you while travelling, is huge. But almost all of them are programs with checking lists and not anything about how you pack all the things the most suitable way in the suitcase, or programs that has nothing to do with luggage. The most advanced program found in the research was also a listing program but this could also calculate the total weight of your luggage, if you typed the weight of each of the different items in the program. So there is not really a program on the market that can solve the problem. (PackList Lite)

1.3   Specification Requirements

The program has some features, which are essential for the program to work, these are catalogued as "targeted features". The other features, the program does not necessarily need to work, is catalogued as "Nice to have" features.

1.3.1   Targeted Features

These are the features that the program will have.

Written in C#: The requirements of the project is, that the solution must be a program written in C#. It must have a grapical user interface (GUI).

Guide the user: The program will have a little readme file, or other form of guide, that will tell the customer how to use the program..

Distribute weight: The program must be able to distribute weight of items evenly, both in multiple suitcases, and in each suitcase.

Distribute space: The program also needs to distribute the items by space. The whole idea of the program, is that it should be able to pack the suitcase, and be able to tell if there is enough space for eventual souveniers.

Account for the trips lenght: If a long trip is planned, the program must be able to account for more souveniers.

On the road: The program will be able to tell you, while you are on the trip, if there is enough space for a souveniers, if you input the dimensions and weight of that item.

Baggage rules: The program will need to know basic baggage rules. For example the luggage must not weigh too much, and it must be below certain dimensions.

Where in the suitcase: When the user asks the program if an item will fit in the suitcase, the program will show exactly where in the suitcase the item will fit.

Solid/liquid/bendable: The program will also take in account that items might be bendable, and therefore fit in other ways that solid items.

1.3.2   Optional Features

1.3.3   Will not Have