Wind Riders of the Lost River Range

A SYSTEMS DEVELOPMENT CASE

Wind Riders of the Lost River Range is a challenging hands-on semester project for systems analysis and design. It is extensive enough to provide a stimulating exercise, but not so large as to be overwhelming. It is sufficiently detailed to challenge students as they apply design concepts to a situation that closely simulates a real-world problem.

FUTURE SYSTEM DESCRIPTION

In order to adapt to a changing business environment, WRLRR is planning to make additional changes. Some existing processes will be modified, and services will be added.

Modified Processes

The company is modifying the following processes:

- Customer purchases equipment
- Customer returns defective/unwanted equipment
- Process Returned Inventory

Customer Purchases Equipment

A customer may purchase one or more items. A purchase follows the script below:

1. The customer examines display items and makes a selection, and then brings an associated product placard containing an item description and a UPC code for each item selected to the checkout.
2. Employee selects "Equipment Sale" from the main menu.
3. Employee requests customer phone number to determine if the customer is in the customer list.

   a. If the phone number is not found, then the Customer Entry Form is displayed, a customer number is generated and assigned to the customer, and their personal information is entered and added to the customer file, including:
      o Name
      o Address (include city, state, zip)
      o Telephone
      o E-mail address

   b. If the phone number is found then the customer may be in the list and the Equipment Sale Form is displayed.

4. The Equipment Sale Form includes the following fields:

   a. Salesperson number (obtained when the salesperson initially logged into the system)
   b. Customer number (obtained in the preceding step)
   c. Payment type

5. The UPC on each placard is scanned and the local inventory database is queried for the item's price, which should also match the price the customer saw on the item's display. For example, the database reflects that the UPC represents a Freedom X 177 Hang Glider that costs $7390.00. The following fields on the Equipment Sale Form are populated:

   a. Equipment type
   b. Model number
   c. Description

    d. Serial number

    e. Price

6. When the transaction is completed the salesperson selects the total option. The system computes any sales tax and displays the total amount due.

7. The customer provides cash, or a credit or debit card. Credit or debit cards have a chip containing their ID, and when read by the cardreader a data record is sent to the point-of-sale (POS) system. The POS transmits it and the amount due to the credit card processing system. If a credit or debit card is used then the following fields on the Equipment Sale Form are populated:

    a. Card type (if applicable)

    b. Card number (if applicable)

    c. Expiration date (if applicable)

    d. Verification code (if applicable)

8. The employee saves a digital copy of the Equipment Sale Form and prints two copies of the purchase agreement, which the customer signs. One copy is retained in a paper file and one copy given to the customer as a receipt. The purchase agreement is detailed below.

9. The inventory is decremented to reflect the sale of each item.

10. The customer is also given their credit/debit card receipt.

The next change involves a clarification of how returns are handled.

Customer Returns Defective/Unwanted Equipment

When a customer returns defective or unwanted (and unused) equipment the following events take place:

1. The customer indicates they he/she wishes to return defective/unwanted equipment.

2. The customer provides a receipt or purchase agreement and the defective/unwanted equipment to be returned.

    a. If no receipt can be provided then the system can be queried for proof-of-purchase by entering the customer number, customer phone number, or customer name/date-of-purchase.

    b. If proof-of-purchase cannot be confirmed, the return cannot be completed.

3. The customer indicates whether the item is defective.

    a. The employee checks the item to confirm the defects and that the item has not been damaged by the customer.

4. The employee next checks the date of the receipt (or proof-of-purchase) to determine if the product is being returned within the 90-day period referenced in the business rules.

    a. If the item is defective and is being returned within the 90-day period, the customer will be issued a refund.

    b. If the item is defective and is returned beyond the 90-day period, the customer will be issued a store credit.

    c. If the item is not defective and is being returned within the 90-day period, but there is damage to the item, the return will not be accepted and no refund will be issued.

    d. If the item is not defective and is being returned undamaged within the 90-day period, the customer will be issued a refund.

    e. If the item is not defective and is returned beyond the 90-day period, the return will not be accepted and no refund will be issued.

5. If a refund can be processed, the employee selects "Equipment Return" from the main menu. The Equipment Return Form contains the following items:

    a. Date returned
    b. Employee number
    c. Customer number
    d. Reason for return
    e. Model number
    f. Description
    g. Serial number
    h. Price
    i. Notation indicting refund or store credit

6. The date returned is provided by the system. The employee number is provided when the employee logged in. The customer number, model number, description, serial number, and price are obtained by scanning the receipt or from retrieving the proof-of-purchase. The employee checks the reason for the return on the form and whether the customer will receive a refund or store credit.

7. A digital copy of the equipment return form is saved.

8. If the transaction results in a store credit, the credit is associated with the customer record in the customer file.

9. If appropriate, the customer is provided with a refund. The customer will receive a receipt indicating the refunded amount and the type of refund.

10. If the product was not defective, then it is flagged to be returned to inventory. If it is defective, then the item will be flagged to be returned to the supplier.

~~Process Returned Inventory~~

~~Any returned items must be processed:~~

1. ~~Non-defective products are placed back in inventory.~~

    a. ~~The UPC is scanned along with the Equipment ID, and the item record is moved from the sales file back into inventory. The inventory count for that item type is incremented.~~

    b. ~~The item is taken to the warehouse and stored in its proper location.~~

2. ~~Defective products are returned to the supplier.~~

    a. ~~The UPC is scanned along with the Equipment ID.~~

    b. ~~The supplier is contacted offline to arrange return of the defective item.~~

    c. ~~The supplier receives the returned item and sends a credit memo to Accounts Payable (AP) for processing (beyond the scope of this project).~~

d. ~~If you are interested, see https://supplychain.ucsf.edu/how-return-goods for more details about the reverse logistics portion of the supply chain. This is enlightening as well: http://www.inboundlogistics.com/cms/article/managing-retail-returns-the-good-the-bad-and-the-ugly/~~

New Services

Nick has pondered several additional services that WRLRR can offer. All of the options being considered could have liability issues, but those will be assessed through discussions with Nick's attorneys and the insurance carrier.

The first service under consideration involves offering training for novice wind riders, as well as advanced classes for those who wish to improve their skills before tackling greater challenges. Even in the short time Nick has owned the business, several people longing for the skies have dropped in or called to inquire about training. Training classes like *Beginning Hang Gliding* or *Beginning Paragliding* lessons have the potential to be a big draw.

Nick has also considered adding adventure packages to the business, which would involve hiring experienced wind riders to lead guided adventure tours. Guided adventure tours could include hiking/rock climbing and hang gliding, hang gliding and rafting, or any of several combinations.

Renting wind riding equipment is another option that Nick finds attractive. It would be relatively easy and inexpensive to offer this service.

Finally, some of the locals have urged Nick to look into hot air balloons, since they are the oldest successful form of wind-riding but are not widely available in the Lost River region. Nick has considered adding hot air balloons to the list of items sold, as well as offering hot air balloon rides. Offering hot air balloon rides has the added benefit of allowing Nick to pilot test entering the adventure package market.

The first option that Nick wants to add immediately is providing hang gliding lessons. Pilots are not *required* to be licensed to fly hang gliders, but according to *The Hitchhiker's Guide to the Galaxy*, *"There is an art to flying, or rather a knack. The knack lies in learning how to throw yourself at the ground and miss. ... Clearly, it is this second part, the missing, that presents the difficulties."* Fortunately, there is a program analogous to FAA licensing that is administered by the USHPA (U.S. Hang Gliding & Paragliding Association). This program consists of a specific set of flying skills corresponding to a series of pilot proficiency ratings (Beginner through Master) each of which carries a set of recommended operating limitations. While these ratings don't carry the force of law in quite the same way as FAA pilot's licenses do, the majority of flying sites in the US require that pilots hold some specific USHPA rating to be allowed to fly. For example, USHPA membership is required to hang glide from King Mountain, at the south end of the Lost River Range.

All instruction starts with supervision and direct physical assistance for simple motor skills. These skills get more complex and varied as lessons proceed. The learning process is fun, vigorous, interesting, and challenging, but it is definitely not casual. It requires discipline and persistence

to properly learn hang gliding. However, the more effort a student puts into it, the greater reward. There are control skills, strategic/technical skills, and emotional skill to be mastered.

The USPHA skill levels include Hang I (Beginner), Hang II (Novice), Hang III (Intermediate), and Hang IV (Advanced). There is a Hang V, or Master level, that is not gained through training, but through experience. Pilot ratings are issued by appointed USHPA officials, who can be instructors or observers. Instructors issue the entry-level ratings and do the basic flight training.

Hang I Beginner Rating

This rating identifies a student who has demonstrated the basic ability to fly in a straight line. The beginner pilot is not yet ready to go out flying independently, but can take off, fly straight, and land. Beginners also understand the basics of glider setup and breakdown.

At Hang I, the goal is performing perfect launches, keeping wings level, and landing on one's feet in ground skimming flight. Hang I pilots must be able to perform the following skills:

- Set-up and perform a pre-flight check on the glider.
- Unassisted take-off (on a training hill).
- Safe, straight flight controlling airspeed and making minor corrections.
- Controlled stand-up landing (or wheel landing if via aerotow)
- Pass an oral exam and a written exam.

A Hang I pilot will only fly under the direct supervision of a certified instructor. Once Hang I skills have been mastered, students will be ready to progress to the Hang II rating.

Hang II Novice Rating

Note that instructors generally provide training equipment as part of their package through the Beginner rating, but will expect students to obtain their own equipment beyond this point.

A novice learns about turns, maneuvering, and how to estimate where he or she will land. The novice will fly from higher ground under supervision and demonstrate confident handling of the glider in flight, as well as operation in stronger winds. The novice will have some training about meteorology, air movement, clouds, and other environmental factors, as well as the legal "rules of the road" that govern flying. Novices may be approved to go out and fly with more experienced local pilots at easier sites, but have not yet gained the level of experience needed to operate independently.

Hence, at Hang II, students experience higher flight, turns, and landing on a designated spot, in addition to developing critical in-flight decision-making skills and learning about weather and natural lift sources. To achieve Hang II status, requires performing the following skills safely and skillfully:

- Land three times in a row within 100 feet of a target.
- Complete linked 90° turns. These turns must alternate from left to right (or vice versa) and demonstrate smooth control.

- Demonstrate fast and slow flight.
- Pass an oral exam and a written exam.

Novice pilots are trained to judge flying conditions for themselves and make decisions on whether to fly or not. Those with a Hang II (Novice) rating are free to fly without the direct supervision of an instructor.

On average, it requires 100 training hill flights (10-14 lesson days) to attain the Hang II rating proficiency. The Hang II with high altitude strategic skills is the practical entry level rating – although additional training through Hang III is safer. Hang III, or intermediate skills, allow pilots to hang glide at many more sites. For example, King Mountain, near the south end of the Lost River Range, is a very dynamic Hang IV site in thermal or high wind conditions. Hang IIIs can fly if assisted by Hang IV or Hang V pilots, preferably people with multiple years flying at King Mountain. It has a gentler side where Hang II and Hang III pilots can fly during milder times, if accompanied by experienced Hang IV pilots, preferably local people. Extensive mountain/desert flying experience and good judgment are necessary to safely fly here. At King Mountain the FAA has granted permission to ascend to twenty-three thousand feet above sea level under certain conditions.

Hang III Intermediate Rating

To achieve an intermediate rating, pilots must gain further experience and training in flight skills and decision-making. An intermediate pilot's focus will be on refining his or her ability to make good decisions and correctly interpret the site and conditions for flying. Pilots will gain more training about weather forecasting, micrometeorology, airspace regulations and the internal rules that govern hang gliding. After receiving this rating pilots will now be skilled enough to make their own decisions, and wise enough to consult local pilots when venturing to a new site. Though they may be able to make independent decisions, they should know enough to fly with a friend for safety and greater fun.

At Hang III, increased airtime and varied experiences lead to further development of skills. To gain a Hang III rating, fliers will be required to have met the following requirements:

- Hold a novice (Hang II) rating for at least four months, with 30 flying days and at least 90 flights.
- Demonstrate steep and gentle 180° linked turns along a predetermined track.
- Land three times in a row within 50 feet of a target.
- Complete at least 10 flights with 75 feet (or greater) ground clearance.
- Demonstrate speed control in turns and various wind conditions.
- Pass a written exam.

Hang IV Advanced Rating
In order to achieve an advanced rating, pilots must accumulate the flying experience and judgment necessary to handle conditions at a wide range of flying sites. Advanced pilots know when and where to fly, as well as when and where not to fly, and can serve as mentors and role models to less-experienced fliers. At some sites, advanced pilots are empowered to close the site or limit flying if they feel conditions are unsafe for lower-rated pilots. Some may also obtain instructor training and go on to teach the next generation of new fliers.

Achieving the Hang IV rating involves going as high 15,000 feet and as far as 100 miles. Hang IV or advanced rating includes the following requirements:

- Hold a Hang III (Intermediate) rating for at least eight months during which at least 250 flights will have been made. Five flights each must be made at five different Intermediate sites (at least three inland).
- Make at least one 60-minute flight.
- Soar in a thermal lift only for at least 30 minutes in one flight.
- Log 25 hours minimum total airtime on at least 80 different days.
- Demonstrate figure eights around reselected pylons across the wind, with the course flown smoothly with equal radius turns.
- Land three times in a row within 25 feet of a spot after flights of at least one minute and at least 200 feet in altitude.
- Demonstrate stall and recovery.
- Pass a written exam.

Hand V Master Rating
The Master rating is only for the most experienced pilots. A pilot with a Master rating has, in addition to all of the flight experience and knowledge, demonstrated outstanding skill in flying over a long period, at many different sites, in varying conditions, on a broad range of different wings. A Master pilot has practiced different launch methods (towing, for example) and has acquired specialized skill signoffs. A Master has flown safely for a long time and has the endorsement of other pilots for the highest rating. To learn more about this rating visit the USHGA site

A rating shows that a pilot has demonstrated a level of flying skill that has been objectively measured, and has completed a test of knowledge about the rules of flight and how a hang glider's wings operate. A rating establishes credibility as a pilot to other pilots or landowners that a pilot meets during his or her flying career. It provides a measurable goal as hang glider pilots develop their skills, and tells others what sort of sites and conditions a pilot is ready for.

Flight training is a serious business at WRLRR. The owner, Nick "Flying Fox" Lovick, has taught countless hang gliding novices to fly throughout Australia and the United States. Over thousands of lessons, he has seen the same beginner mistakes over and over, and he has developed a variety of helpful training techniques to assist beginning students. Nick and his staff of instructors are all USHPA certified.

Novice Level Instruction

The Novice level consists of a combination of textbook study, ground school instruction, dual flight instruction from a carefully selected launch site, and solo flight instruction. During this phase students will learn low attitude flight skills, cross-wind take offs and landings, safe and effective turning skills, flight theory, basic aerodynamics and care of their glider and flight equipment. Glider assembly, pre-flight safety inspections, and ground handling in varying velocities of wind and turbulence, are additional skills focused on in the novice level, as they too are necessary for safe mountain flying. Novice training averages 4 to 5 dual (tandem) flight lessons and 6 solo lessons.

Intermediate Level Instruction (Mountain Training Package)

The Intermediate level is the final stage of formal instruction from WRLRR. This segment of lessons consists of solo high-altitude flight training from a carefully selected launch site. Students will develop such skills as 360 degree turns, stall and slip recognition, glide angle control, in-flight wind analysis, emergency procedures, and consistent landing approaches.

Each high altitude solo lesson consists of 1 flight. During each flight, the instructor will assist and critique students via a radio receiver attached to their helmet. An average of 8 solo flights will develop the skill and confidence necessary to fly at the WRLRR Flight Park, without the direct supervision of an instructor. Pilots will be "cleared to fly" this site (under instructor supervision) while logging additional flights and experience. A small flight supervision fee is payable to WRLRR for this service. An instructor will place temporary limitations on the conditions in which novice pilots may fly. The general rule is that high altitude flights will be limited to winds less than 18 miles per hour it smooth. And winds of less than 11 miles per hour if gusty.

The final stage of the Mountain Package teaches pilots how to stay aloft for hours at a time, right-of-way rules, flying close to other gliders, flying weather forecasting, Federal Aviation Regulations, and aeronautical chart usage. Normally this requires 2 advanced soaring flight lessons.

PROCESSING DESCRIPTIONS

WRLRR plans to add the following services for customers through the following business processes:

- Customer Enrolls in Training Session

WRLRR needs additional "back office" services to support the new business requirements. All of the following reports are sent to management and archived in a report archive file.

- Insure flight training service
- Generate upcoming training schedule
- Generate trainee list
- Track trainee progress

Customer Enrolls in Training Session

A customer may enroll in a training session by telephone or in person.

1. Employee requests customer phone number to determine if the customer is in the customer list.

    a. If the phone number is not found, then the Training Session Enrollment Form is displayed, a customer number is generated and assigned to the customer, and their personal information is entered and added to the customer file, including:
       o Name
       o Address (include city, state, zip)
       o Phone number
       o E-mail address

   o   Age
   o   Weight (in pounds)

   b. If the phone number is found, personal information is verified and the Training Session Enrollment Form is displayed.

2. The customer specifies the following information, which is entered into the Training Session Enrollment Form:

   a. Requested date
   b. Back-up date
   c. Lodging Name (if not a local)
   d. Lodging Address (include city, state, zip)

3. The customer settles up.

   a. If the reservation is being made by telephone, the customer provides the following information to pay for the deposit, and the information is entered into the Training Session Enrollment Form:

      ▪ Card type (if applicable)
      ▪ Card number (if applicable)
      ▪ Expiration date (if applicable)
      ▪ Verification code (if applicable)

   b. If the reservation is made in person, the employee requests payment for current charges. The customer provides cash, or a credit or debit card. Credit or debit cards have a chip containing their ID, and when read by the cardreader a data record is sent to the point-of-sale (POS) system. The POS transmits it and the amount due to the credit card processing system. If a credit or debit card is used then the following fields on the Training Session Enrollment Form are populated:

      ▪ Card type (if applicable)
      ▪ Card number (if applicable)
      ▪ Expiration date (if applicable)
      ▪ Verification code (if applicable)

4. The employee taking the reservation saves a digital copy of the Training Session Enrollment Form and the data is stored in the training session file.
5. An Training Session Enrollment hardcopy and a Student Pilot Waiver (from USHPA) are emailed to the customer, to be completed and submitted prior to the training session.

Insure Flight Training Service

This is such a complex and fluid process that we will not include details in our diagrams. Simply represent it as one process named Obtain Flight Insurance. The details below are simplified, but will still provide adequate justification for avoiding drilling down

Although insurance must be available to cover pilots, chapters, flying site landowners, instructors, and flight schools, in 2015 the commercial carrier that insured USHPA and some of the largest flight schools in the U.S., announced that it was discontinuing the insurance program. In order to fill this insurance need, USHPA decided to self insure. USHPA created a

Risk Retention Group (RRG), together with the Professional Air Sports Association (PASA), a not-for-profit entity, the Foundation for Free Flight, a not-for-profit entity, and various for profit hang gliding and paragliding flight schools, in order to provide insurance coverage for these entities as insureds and their members, chapters, and flying site landowners as additional insureds.

RRG estimates that if a training facility teaches less than 200 Student Lesson Days per year, then the Small Business Flight School (SBFS) membership option of PASA is likely your best choice. You will need to apply to PASA for certification, be approved for certification, and choose your level of membership in **PASA** as a SBFS. After you have done so, you will be issued your PASA certification. PASA membership provides access to the RRG's insurance.

Generate Upcoming Training Schedule

An upcoming training schedule can be generated at any time. The upcoming training schedule contains the following:

- Header Section: training session date.
- Detail Section (for each trainee): trainee name, rating, lesson milestones, address (with city/state/zip), phone number, e-mail address, lodging name and address (if not local)
- Footer Section: Trainer name.

Generate Trainee List

A trainee list can be generated at any time. The trainee list contains the following.

- Header Section: Trainee name, trainee id.
- Detail Section: address (with city/state/zip), phone number, e-mail address, USHPA rating, training hours, training flights, details for each fight per log book:
    - Date
    - Site
    - LZ location
    - Glider
    - flight number for the day
    - launch altitude
    - LZ altitude
    - launch time
    - flight duration
    - straight line distance launch to landing
    - path length from GPS track
    - altitude max
    - altitude min
    - altitude gain from vario
    - max climb rate
    - max sink rate
    - have a GPS track for the flight? (y/n)
    - write up a story for the flight? (y/n)
    - other pilots who flew that day
    - important notes/incidents

Track Trainee Progress

Each student should be automatically issued with a Student's Training Record & Log Book when they start their training. Students must use these log books to record all their flight details, including date, the location of the flying site, the wind and weather conditions (strength, direction, gusts, sky conditions), the duration of flight, and landing site. The log book should also be used to record any accidents and any damage sustained by the glider or equipment, along with any repairs carried out. The log book should also note each time the glider is serviced or has parts replaced. At the end of every year the total number of flight hours should be recorded. Students should also record what exercises they were practicing during each training session. Students must have their log books signed by their instructor at the end of each day's training, and must in turn sign the Instructor's Teaching Log Book. This 'double entry' system has become necessary for legal reasons and also serves to remind the instructor when a student was last out training and what exercises they were practicing last. The USHPA instructor will need to verify each Student's Training Record & Log Book before a new Hang rating can be awarded. Students are reminded that they must remain under direct supervision of their instructor until they have successfully completed Hang 2, and must remain under indirect supervision until they have successfully completed Hang 3. The details of the log book are listed in the preceding process.

1. An Instructor Log Book is maintained with the details described above. This will be done using an online form or a mobile app.
2. A USHPA rating is issued by an USHPA instructor when the criteria have been met.
3. Changes in USHPS ratings are sent to the USPHA for their records.
4. A rating official can revoke a rating he has issued previously, at any time and for any reason.

ADDITIONAL BUSINESS RULES

Additional business rules associated with WRLRR includes the following:

- The minimum weight is 80 pounds. The maximum weight is 350 pounds. You must be able to pick up 40 pounds and jog at least 5 MPH.
- The minimum age limit is 16 years and written parental consent is required under the age of 18 years.
- Class starts at 9:30 until June 1st then class starts at 8:30 am , Class is 4 hours
- Training sessions are held Friday through Sunday.
- Training Costs:
  - Training through the Novice level: $1200 – $1600
  - Training glider: $800 – $2800 (used) $2900 – $3750 (new)
  - Harness $50 – $450 (used) $550 – $950 (new)
  - Parachute $200 – $300 (used) $600 – $850 (new)
  - Helmet $80 – $300 (new)

Next Modification

The second feature that Nick has decided to add to WRLRR's services is tandem introductory flights.

In tandem hang gliding, the student and instructor are hooked into the glider together. The glider is designed specifically for tandems with a larger wing area for more lift and tricycle landing gear to simplify take offs and landings. Nick has planned the Introductory Tandem Experience to provide the best introduction to hang gliding.

The tandem hang gliding morning session will involve a short trip to the launch site, 20 minutes assisting in the assembly of the modern tandem hang glider, and a 20-minute pre-flight ground school and safety briefing. After the initial briefing, guests will be helped into a harness and will be clipped into the hang glider alongside an experienced instructor. The glider will then be launched into the air with the instructor at the controls! Guests will fly their first flights in a controlled environment, surfing the slopes of some of the smaller hills only 10 to 20 feet off the ground. Guests will be given five opportunities to fly training flights with a certified instructor guiding them step by step.

After the morning session guest will fly tandem with an instructor by their side to an altitude of either 1,500 feet or 3,000 feet. After having experienced the training hills, guests will have more opportunity to and success in piloting the glider during the tandem.

Since there is a limited number of tandem flight instructors the classes are limited to two or three customers per lesson time slot. Advance reservations are recommended.

PROCESSING DESCRIPTIONS

WRLRR plans to add the following services for customers through the following business processes:

- Customer submits Introductory Tandem Experience reservation

WRLRR needs additional "back office" services to support the new business requirements. All of the following reports are sent to management and archived in a report archive file.

- Generate upcoming Introductory Tandem Experience reservations report
- Generate monthly Introductory Tandem Experience report

Customer submits Introductory Tandem Experience reservation

A customer may reserve an Introductory Tandem Experience by telephone or in person.

1. Employee requests customer phone number to determine if the customer is in the customer list.

   a. If the phone number is not found, then the Introductory Tandem Experience Reservation Form is displayed, a customer number is generated and assigned to the customer, and their personal information is entered and added to the customer file, including:

- Name
- Address (include city, state, zip)
- Phone number
- E-mail address
- Age
- Weight (in pounds)

    b. If the phone number is found, personal information is verified and the Introductory Tandem Experience Reservation Form is displayed.

2. The customer specifies the following information, which is entered into the Introductory Tandem Experience Reservation Form:

    a. Requested date
    b. Back-up date
    c. Lodging Name
    d. Lodging Address (include city, state, zip)

4. The customer settles up.

    a. If the reservation is being made by telephone, the customer provides the following information to pay for the deposit, and the information is entered into the Introductory Tandem Experience Reservation Form:

    - Card type (if applicable)
    - Card number (if applicable)
    - Expiration date (if applicable)
    - Verification code (if applicable)

    b. If the reservation is made in person, the employee requests payment for current charges. The customer provides cash, or a credit or debit card. Credit or debit cards have a chip containing their ID, and when read by the cardreader a data record is sent to the point-of-sale (POS) system. The POS transmits it and the amount due to the credit card processing system. If a credit or debit card is used then the following fields on the Introductory Tandem Experience Reservation Form are populated:

    - Card type (if applicable)
    - Card number (if applicable)
    - Expiration date (if applicable)
    - Verification code (if applicable)

5. The employee taking the reservation saves a digital copy of the Introductory Tandem Experience Reservation Form and the data is stored in the tandem flight reservations file.

6. An Introductory Tandem Experience reservation hardcopy and a Passenger Waiver (from USHPA) are emailed to the customer, to be completed and submitted prior to the tandem flight.

Generate upcoming Introductory Tandem Experience Reservations Report

The tandem pilot can generate an upcoming Introductory Tandem Experience reservations report for any given date.

The upcoming Introductory Tandem Experience reservations report contains the following:

- Header Section: trip date.
- Detail Section: passenger name, address (with city/state/zip), phone number, e-mail address, number in party, lodging name, lodging address.
- Footer Section: Pilot name.

Generate Monthly Introductory Tandem Experience Report

The monthly Introductory Tandem Experience report is generated on the first day of every month and contains data from the prior month. As noted above, the report is sent to management and archived in a report archive file. The monthly Introductory Tandem Experience report contains the following:

- Detail Section: Pilot name, tandem flight count, total tandem flight charges,
- Footer Section: (for each pilot) tandem flight count total, total tandem flight revenue.

ADDITIONAL BUSINESS RULES

Additional business rules associated with WRLRR includes the following:

- The weight limit for tandem students is 250 pounds with customers between 230 to 250 pounds needing smoother weather conditions to fly.
- Tandems are flown on a reservation system.
- Insurance requires the minimum age to tandem hang glide is 10 years old.
- Tandem Lesson: $249 (introductory price $199)

After this phase of systems changes has been completed, the Wind Riders of the Lost River Range will need a sophisticated web site through which they can promote their services, sell equipment, arrange returns, arrange training, and schedule tandem flights.

OVERLOOKED FEATURES

Part of a systems analyst's responsibility is to recognize if anything has been overlooked. For example, in adding training services, were any necessary associated processes left out? This is where your familiarity with the normal functioning of businesses can come in useful. If you suspect something has been overlooked, diplomatically bring it to the attention of the individual(s) who is responsible for commissioning this project as a possible oversight.

STUDENT RESPONSIBILITIES

Once the project is distributed students are responsible for turning in intermediate deliverables throughout the remainder of the semester, generally one per week. Note the approach used, in which a large project is divided into a series of milestones or deliverables. This is a form of project management that forces the developer to meet deadlines or run the

risk of falling farther and farther behind. The completed project, presented via a technical report and web site, is due near the end of the semester.