SOFTWARE DEVELOPMENT PROJECT

IST303, Fall 2014

You, as part of an instructor-assigned team, must complete the software development project specified in this handout.

Your team must use techniques from this course to develop the software. Use of other techniques, including traditional software engineering and project management tools, is discouraged. Concentrate on being able to create software using the techniques covered in this course, namely agile methods and tools.

The team must deliver presentations on the days shown in the schedule at the end of the syllabus. All team members must contribute equally to the project and the presentations. Presentations must demonstrate working software, as well as explain clearly what was done to produce it, justifying project actions and decisions in terms that would be understandable to clients.

The first presentation must provide an initial solution for the project; the second must provide an improved solution. You must submit working code with each presentation. You must demo your code in class. Your code must be written as object-oriented software, in Python, Java, Ruby, or VB.net. (If you *really* want to use another OO language, ask permission from the instructor. Non-OO languages will not be allowed.) Any slides or handouts used during the presentation must be submitted, as well.

Presentations should run no more than 25 minutes (20 minutes software demo and explanation, plus 5 minutes questions and answers). Penalties will apply for serious deviations (+/-) from the 25-minute limit.

Each student will receive the grade assigned to her/his team. Team grades will depend on use of the concepts and techniques in the course, quality of the software developed, and quality of the presentations made.

The instructor will include peer evaluations in determining presentation grades. The instructor will explain the peer evaluation rating form(s) and procedures prior to the first presentation.

No individual submissions will be allowed. Team members must share the work involved equally, and must strive to resolve any issues related to unequal participation, should these arise. The instructor reserves the right to remove uncooperative team members from teams and assign them grades indicative of non-performance.

PROJECT DESCRIPTION:

The project is to create software to support the activities of the front desk staff members of "Dude, Where's My Horse?" (DWMH), which is a new, small dude ranch, located in a remote, scenic part of the US.

The software must support DWMH's front desk staffers as they perform various clerical tasks for clients and provide them with information about ranch services, prices, and availability. The tasks they perform include managing room reservations, managing service appointments, managing check-ins and checkouts, handling payments and credits, receiving comments and complaints, and providing travel directions, upon request.

DWMH is a full-time, resort dude ranch facility, but it has a small staff, because it is a recent start-up.

DWMH's staff includes a general manager, a day supervisor, a night supervisor, trail riding guides, hiking guides, lasso experts, masseurs/masseuses, housekeeping personnel, groundskeepers, maintenance workers, drivers, chefs, kitchen workers, and several front desk employees. Importantly for this project, there is just one front desk employee on duty at any time. All front desk employees are local people, hired primarily for their hospitability, not for their computer skills—you can't assume sophistication in the use of computer software.

At some point in the future, the software may need to be enhanced to provide support for other activities, including management, kitchen, maintenance, housekeeping, grounds keeping... For now, the *only* purpose of the software is front-desk support. Management has chosen to defer elaboration of the software, connection to the Internet, or interface with other computer applications.

The primary tasks that front-desk support personnel must handle, and the software must support, concern room reservations, ranch services reservations, and check out.

ROOM RESERVATIONS:

Front-desk personnel make all room reservations, typically while talking to potential guests on the phone. As there is no reliable Internet service at the site of the ranch, it is not envisioned that any kind of guest self-service reservation system will be available soon.

Front-desk personnel must be able to check if a suitable room or rooms are available on the dates that potential guests would like to stay. They should be able to reserve rooms, calculate room charges for the reservation, and accept credit card information to secure the reservation. They should note the number of people in each reservation party, their names, and their reservations statuses (adult responsible for reservation, other adult, child), if known at the time of reservation.

When guest arrive for their reservations, front desk personnel should be able to check them in, updating the number of people in the reservation party, their names, and their reservations statuses. It is not necessary for the software to trigger any internal activity, such as housekeeping notification, but data concerning the room reservation—for example, room status changing to "checked in"—should be modified.

DWMH has 36 rooms: 16 can accommodate 2 people (single); 16 can accommodate 4 people (double); 4 can accommodate 8 people (quadruple). During the peak season (May 15-August 15), weekday rates for rooms are $175 (single) / $325 (double) / $600 (quadruple), and weekend rates are $205 (single) / $355 (double) / $630(quadruple). During the off-seasons (August 16-May 14) weekday rates for rooms are $140 (single) / $260 (double) / $480 (quadruple), and weekend rates are $170 (single) / $290 (double) / $510 (quadruple). Full payment, by credit card or check, for the room reservation and all service reservations charges, is required at check out. Credit card information is required at the time of room reservation.

A full refund is given for room reservation cancellations made three weeks or more before scheduled check-in. A 75% refund is given for room reservation cancellations made less than three weeks, but more than 48 hours, before scheduled check-in. No refund is given for room reservation cancellations made less than 48 hours before scheduled check-in. Guests who check-in for at least one night may shorten the length of their reservation; a 75% refund is given for days dropped to make the reservation shorter. The software must be flexible enough to easily accommodate changes in the number, types, and prices of rooms.

RANCH SERVICES RESERVATIONS:

The software must be able to keep track of each member of a room reservation party. Members of room

reservation parties may reserve various ranch services. All service reservations made by members of room reservation parties must be added to the bill for the room reservation, which is settled at check out.

For each room reservation, one member of the party is responsible for the bill. Other members of the party (particularly children) may be prohibited from making ranch service reservations directly, although designated members of the party may make such reservations in their name. For example, a party of four may include two adults and two children. One of the adults will be responsible for the entire reservation. Both adults may be allowed to make ranch service reservations for themselves and other members of the party. The children may be restricted from making service reservations (or they can be allowed to do so, if the responsible party agrees).

The typical dude ranch provides a range of services, including trail riding, hiking, petting zoo, swimming, rodeo, fishing, games, skeet shooting, archery, art classes, and cooking classes. (For more information about dude ranches, see http://www.duderanch.org/.) DWMH, as a recent start-up, offers a limited menu of ranch services. These include trail riding, hiking, massages, and lassoing classes. Other typical dude ranch services are planned, but not yet implemented.

DWMH offers their services seven days a week, at specified times (see below). Reservations are required for each service.

Guests are charged for every service they reserve. Charges are made at the time of reservations; payment of charges occurs at checkout. A guest may cancel a reservation for a service at no charge, if he/she does so within 10 minutes of making the reservation or at least 90 minutes before the reservation time; otherwise the guest is charged for the service, received or not.

- Guests can schedule trail riding (on horses) for 60 minutes ($30) or 90 minutes ($40). Trail rides include a guide, who will lead the group and provide narration concerning the terrain, plants, and wildlife, a horse, required riding gear, and refreshments. The ranch has capacity for 12 guests to go on any given trail ride. The ranch offers 90-minutes rides each day at 5:30am, 8:30am, 11:30am, 2:30pm, and 5:30pm; 120-minute rides are offered at 5:00am, 8:00am, 11:00am, 2:00pm, and 5:00pm.

- Guests can schedule either of 2 kinds of guided hiking (normal and extreme), each of which can be scheduled for 90 minutes ($20) or 180 minutes ($35). The ranch has capacity for 8 guests at a time to go on each of the kinds of hikes. Guided hikes include transportation to the trail, narration by the guide concerning terrain, plants and wildlife, and refreshments. The ranch offers 90-minutes hikes of each kind, each day at 6:00am, 9:00am, noon, 3:00pm, and 6:00pm; 120-minute hikes of each kind are offered at 5:00am, 8:00am, 11:00am, 2:00pm, and 5:00pm.

- For après trail riding or hiking (or for no reason at all), the ranch offers massages, which guests can schedule for 30 minutes ($15) or 60 minutes ($25). Massages begin on the half-hour and hour. The ranch has capacity for 6 guests to have massages at any time.

- Guests can schedule lassoing classes, from a real “cowboy” or “cowgirl” for 10 minutes ($10) or 20 minutes ($15). The ranch has two lassoing instructors; so two guests can have lassoing lessons at a time. 10-minute lessons start every 15 minutes, beginning at 8am. 20-minute lessons start every 30 minutes, also beginning at 8am.

The software must enforce timing of ranch service reservations. Ranch service reservations may only be made at times that services are offered. They may only be made during days when the guest has a room reservation. They may only be made when the ranch’s capacity for the service has not been exhausted.

The software must enforce non-overlap of ranch service reservations. A guest may not be booked for any two ranch services at the same time. (For example, a guest may not book a 120-minute trail ride beginning at 8:00am and also book a 30-minute massage beginning at 9:00am.) The software must also enforce capacity limits.

Ranch service reservations are on a first-come, first-served basis. As cancellations of service reservations occur, capacity limits should be changed. Guests should be allowed to request to be put on a waiting list for services that are unavailable, in case cancellations occur.

CHECK OUT:

At the end of a room reservation, guests work with front-desk personnel to check out. This involves presentation to the guest of a bill for all charges—room and ranch services. Some expenses, such as meals at the ranch's restaurant, are not included, although they may be in future. The software in this project does not need to handle credit card payments directly, only the capture of the data required to process charges. For now, the charges will be processed off-line. The bill presented to the guest should list all charges made against the room reservation, including the nature of the charge, when it was made, and by whom.

OTHER REQUIREMENTS AND GUIDELINES:

The software will be implemented on a stand-alone, single-workstation system. DWMH is located in a remote area that does not have reliable Internet access or cell phone service, although it has landline telephone service. Given this, and since the software is only intended to serve front desk employees, one-at-a-time, it does not need multi-user or network capabilities. Management might be interested in adding such capabilities in a later version of the system.

The software must be correct. Full testing is expected, and should be explained during the presentation, as well as fully documented.

The data that the software uses must be maintainable by management or their designees. (For example, it should be possible for authorized employees to add/change/delete various ranch services, the times they are offered, their prices, the ranch's capacity for them, and so on. Similar modifications should be possible for rooms, their capacities, and their prices.) The software should have one interface for front-desk personnel operation and another for data maintenance. These should be demonstrated during the presentation, as well as fully documented.

The user interface for the software does not need to be fancy. It can be text-intensive, rather than graphical. Project teams need not spend much time or effort on making the software pretty. The most important aspects of the project are the use of the agile software development concepts and methods covered in the course, not the slickness of the programming.

Consider the instructor to be your client for project purposes, including setting priorities for tasks and answering questions not answered by this document. If you need to ask the instructor/client questions, make an appointment to do so. For purposes of the project, treat the instructor as you would treat an actual client.

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