

R-evolution

Newsletter for developer community
For private circulation only

Editorial

Mobile Gaming



Dear Developers

The mobile phone today is no longer owned simply for its communication abilities but also for the advanced features it possesses. A prominent feature that stands out on the mobile phone today is the gaming feature. Gaming is the second biggest entertainment industry in the world and the fastest growing one. According to Gartner as consumer awareness grows and publishers release more content, world-wide mobile gaming end revenue will grow to US \$9.6 billion in 2011. Mobile gaming is set to register a strong growth in India. According to Zinnov, a US based consultancy and research agency, the mobile gaming market is likely to achieve a CAGR of 118% in the next two years. The market size, it is said, is expected to grow from \$15 million in 2005-06 to \$336 million as gamers graduate from today's Java-based games to rich-content and 3-D driven games. Mobile users, especially the young adults and teenagers, are willing to experiment with new games based on local themes, especially Cricket and Bollywood. Mobile Advergaming is the new format where the user is provided complete brand experience as well. This will make mobile gaming a strategically important tool for advertisers and marketers.

The lead article talks about localizing mobile games for the Indian consumers, which will be of much more interest to them. The Technical Article lays down important guidelines for implementing high score functionality in games submitted to Reliance Communications. In this issue, we conclude the article on "Best practices to improve performance in Servlets" as part of the Technical Tip Section. In the "Interview of the month" - Mr Salil Bhargava - CEO Jump Games discusses the emerging trends in consumer behaviour with respect to mobile gaming applications in India and abroad and what is key to developing innovative and creative games.

We look forward to receiving your feedback and valuable suggestions.

Warm Regards
Chanda Mahajan
Reliance Developer Programme Team



Lead article

Think Global,
Play local



Technical article

High score Functionality
in Game



Technical tip

Best practices to improve
performance in Servlets



Interview of the Month

Salil Bhargava



Event Update

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Monthly Quiz & Poser



Where ever there is a device to access, there will be content to deliver. This has essentially been the motive behind the successes of Disney in all forms electronic. This has all the more been the case with gaming specifically as the number of handsets that we need to port every single game to all the handsets that are available in a market.

Welcome to the world of hard work and perfection. Hard work as it is imperative to find the list of your top handsets and ensure it is ported to cover the maximum and perfection because you need to really have multiple versions of the same game on multiple handsets.

While we find the game plays and file sizes in global markets moving towards the higher end, peculiarly in India we are more and more forced to be compatible with the lower end handsets and game sizes which are unthinkable elsewhere.

Disney has had one of the best successes globally in developing games and distribution of the same. However, when we started operations in India, it was a challenge to showcase our games in almost invisible black and white screens and really small colour ones. India is a priority market for the entire Walt Disney Company. This level of interest in the market has also enabled us to think locally. We have found the right brands to collaborate with, who understood our requirements and helped us maintain the quality that we set to achieve.

Across the company, we're focused on three strategic priorities to propel the company forward: the creation of quality content, compelling application of new

technologies, and global expansion, to provide families with wonderful entertainment experiences. Here I would like to stress the importance of localization since we are talking international expansion. While across carriers in India, localised games are very few, Reliance Communications has been the only one where we find plenty of localised games.

One of our first localisation attempts is a game branded relates to Mickey Mouse and hence we are able to transcend him into any and every environment. One can actually play the game as Mickey and participate in a race across the traffic rush in their city. The second one was Disney Cricket, where you could play as Mickey or Donald and set your own benchmarks of scoring and taking wickets. The third being "Donald Ganga Kinare"! You are Donald in an adventure game, go across the river Ganga, rescue Daisy from the other bank and bring her back safely.

All three are for India, by India and of India. These are local concepts, developed and ported in India and have



Lead article (Cont'd)

WDIG's success in emerging platforms stems from the strengths of Disney's major brands and franchises, which have been leveraged and brought online in innovative and strategically sound ways – positioning the company as the leading provider of entertainment and information for the broadband and wireless markets.

The importance that we give in bringing a lot more adaptable games for all kids and their families can be showcased through the series of Power Ranger games that have been dominating the gaming circuit for the past 18 months. Power Ranger – Dino Thunder in January 06, PR –SPD in July 06 and PR mystic Force in Feb 07 are the perfect examples of how the successes of a title could ideally be turned into a franchise.

Await the turn of Power Ranger Over drive – shortly on your mobile phones!



About the Author

T N PRABHU- Director , WALT DISNEY INTERNET GROUP

T N Prabhu has been the Director, Walt Disney Internet Group (India) since October 2005. T N Prabhu shoulders complete responsibility to ensure the success of the Walt Disney Internet Group (WDIG), as an integral part of The Walt Disney Company's as an overall India strategy. Prabhu is in charge of country specific revenue targets across WDIG's businesses, including premium broadband services, mobile applications, interactive television gaming, and other potential emerging digital services. Prior to his association with Disney, Prabhu held the position of Vice President Strategy & Planning at Rediff.com India Ltd. His previous assignments were with Times Internet Ltd, Ciol.com, Cyberexpo Ltd, Cyber Media (India) Ltd, International Data Corporation (India) Ltd and The Hindu, in India.



Important Guidelines for Implementing High score Functionality in Game submitted to Reliance Communications

Technical article

Game Station Client Implementation is a component, which the game developers have to plug into their new / existing games, so as to enable the application to interact with the Server. This document is meant to assist the developers in adding the component to their game.

There are three different requests, game makes to the server.

1) Posting of Score: A user can post his high score on to the server.

Functionality:

- Facility to have a back up of top 1000 scores with automatic real time refresh of the scores to increase the excitement in case if the game is based with a contest. Every new top score is entered in the data base and the least score is automatically deleted maintaining a data of 1000 top scores.

Method details:- The developer need to use the

postScore () method of GenHttpConnect class in order to post his score.

public String postScore (String gameURL, String gameID, String nickName, int tmpScore)

Parameters:

gameURL - URL of the gamestation server

gameID - Unique ID assigned to each game. The gameID is to be picked from the JAD file

nickName - Nickname to be entered by the user while posting the high score. Nickname cannot be left blank or cannot be greater the 5 characters.

tmpScore - score obtained by the user in the game.

Returns:

A String containing message and the players position in top 100 scores or a proper message if score is not among top 100 scores.

2) Fetching High Score List: A user can also fetch the list of top high scores for a game stored on the server.

Functionality:

- The top 10 scores should be displayed on R World with real time automatic refresh.
- Each game should have a nick name entry before playing the game and the scores should be associated with the nick name.
- Multiple entries of Nick name by the same MDN and multiple MDN's having the same nick name should be differentiated.
- At any given point of time there can be 1 to 6 contests live, so the respective provision should be made in considering the same.
- The winners would be selected on the basis of the Nick Name, MDN, date and the score.
- The period of data should be flexible so that the game can be based on top score or contest for a period of days.

Technical article (Cont'd)

Method details:- The developer needs to use `fetchHighScore ()` method of `GenHttpConnect` class in order to get the list.

```
public String fetchHighScore (String gameURL, String gameID
```

Parameters:

gameURL - URL of the gamestation server.

gameID - Unique ID assigned to each game. The gameID is to be picked from the JAD file.

Returns:

A String which tells whether or not high score exists for this game. If the high score exists then it has to be picked from `hgScrList []`.

3) Posting of Vote: A user can post his rating for the game on to the server.

Functionality:

- This feature would enable the user to rate the game.
- The parameters for rating - Excellent / Very Good / Good / Average. It should be flexible and can be easily changed.
- After every session of the game Voting option should be available by which the user can rate the game. This helps in getting the right feedbacks of the feeling of the game.

Method details:- The developer needs to use the `postVote ()` method of `GenHttpConnect` class in order to post his vote.

```
public String postVote (String gameURL, String MIDletName, String rate, String MIDletVendor)
```

Parameters:

gameURL - URL of the gamestation server.

MIDletName - The name of the MIDlet. To be picked from the JAD file.

rate - The rating given the user to the game.

MIDletVendor - The MIDlet Vendor. To be picked from the JAD file.

Returns:

A String containing the message whether or not the vote has been successfully posted on the server.

The following are the screenshots of the application.



The developer has the option of using standard MIDP components like Form, Text Box, List etc or he can also draw screen like this on the canvas. The basis for the choice should be the lesser number of lines of code.

Note:- All game developers who are interested to implementing this functionality can send a mail to dadp.query@relianceada.com after evaluating the requirement we will send you the necessary high score implementation API's.



About the Author :

Dilip Patil is currently working as a Java Developer with Applications Solutions and Content Group, RCOM. He enjoys listening to music, playing games. You can reach him at: dilip.patil@relianceada.com



Best practices to improve performance in Servlets

Technical tip

Part -2 (Continued from the last issue)

Choosing the right session mechanism

We use session mechanism to maintain client state across multiple pages. The session starts when the client, such as browser requests for a URL from the web server and it ends when the web server ends the session or web

server times out the session or user logs out or user closes the browser.

There are few approaches available to maintain the session, they are using

1. HttpSession provided by servlet API
2. Hidden fields
3. Cookies

4. URL rewriting
5. Persistent mechanism

Obviously it is difficult to select one mechanism out of above mentioned approaches to maintain session data. Each one impacts performance depending on amount of the data to be stored as session data and number of concurrent users.

Technical tip (Cont'd)

The following table gives you an idea of performance based on the approach used.

| Session mechanism | Performance | Description |
|----------------------|------------------|---------------------------------------------------|
| HttpSession | good | There is no limit on size of keeping session data |
| Hidden fields | moderate | There is no limit on size of passing session data |
| Cookies | moderate | There is a limit for cookie size |
| URL rewriting | moderate | There is a limit for URL rewriting |
| Persistent mechanism | moderate to poor | There is no limit of keeping session data |

Here the Persistent mechanism means that you store the session data in the database, file storage or any other persistent storage.

Control HttpSession

If you decided to use HttpSession for your session tracking, then you need to know how your application server/servlet engine implements HttpSession mechanism. You need to take care of the following points.

- 1 Remove session explicitly.
- 2 Set Session time out value.
- 3 Application server/servlet engine implementation.

Generally, your application server/servlet engine will have default session time out value as 30 minutes which means that if you don't remove session or manipulate that session for 30 minutes then your servlet engine removes that session from memory. If you set long session time out value such as 1 hour, then it keeps all the session objects till 1 hour. This approach effects scalability and performance because of overhead on memory and garbage collection. In order to reduce

memory overhead and to increase performance, it is better to remove/invalidate session explicitly using `HttpSession.invalidate()` method and also try to reduce the session time out value as per your application's requirement.

Third important point is that your application server may serialize session objects after crossing certain memory limit; it is expensive and effects performance because it not only serializes the single session object but also serializes the total object hierarchy. Use 'transient' for variables to avoid unnecessary serialization.

Disable Servlet auto reloading

Most of the application servers/servlet

engines have the capability of loading servlets dynamically, that means you need not restart your server whenever you change the servlet content. Application server/servlet engine loads the servlet with auto reload each time when you configure the servlet. For example, if you configure auto reload as 1 second, then servlet engine loads that servlet after every 1 second. This feature is good at development time because it reduces the development time by avoiding restarting the server after every change in servlet. But it gives poor performance at production by unnecessary servlet loading and burden on class loader. So turn off your auto reloading feature in the configuration file to improve performance.

Optimization techniques in destroy() method

The `destroy()` method is called only once in its servlet life time when the Servlet Engine removes from memory. It is always better to remove instance variable resources such as JDBC connections, sockets and other physical resources in this method to avoid memory leaks.

Key Points

- 1 Use `init()` method to cache static data
- 2 Use `StringBuffer` rather than using `+` operator when

you concatenate multiple strings

- 3 Use `print()` method rather than `println()` method
- 4 Use `ServletOutputStream` rather than `PrintWriter` to send binary data
- 5 Initialize the `PrintWriter` with proper size
- 6 Flush the data partly
- 7 Minimize code in the synchronized block
- 8 Set the content length
- 9 Release resources in `destroy()` method.
- 10 Implement `getLastModified()` method to use browser cache and server cache
- 11 Use application server caching facility
- 12 Use Mixed session mechanisms such as HttpSession with hidden fields
- 13 Remove HttpSession objects explicitly in your program whenever you finish the task
- 14 Reduce session time out value as much as possible
- 15 Use 'transient' variables to reduce serialization overhead if your HttpSession tracking mechanism uses serialization process.
- 16 Disable servlet auto reloading feature.
- 17 Use thread pool for your servlet engine and define the size as per application requirement.



About the Author :

Krishna Udipi is currently working as a Java Mobile Application Developer with Applications Solutions and Content Group, RCOM. He enjoys blogging and listening to music. You can reach him at: Krishna.Udipi@relianceada.com



As the CEO of Jump Games, Salil Bhargava has led the company's emergence as a cutting-edge, sophisticated brand in the gaming space. He is currently driving Jump's rapid expansion into the international gaming market and its association with eminent technology leaders, IP and content owners, leading publishers, and industry stalwarts.

The key to develop innovative and interesting games is to keep it simple and cut the clutter. Today, the market is full of games that look like clones of each other. The key to creating fresh content is to understand the target audiences and map games accordingly. Today, with over 50 million mobile phone subscribers, the consumer profile for games is very dynamic. The idea is to create games that will appeal to one and all and keep innovating.

Q1. Please tell us something about your company – Jump Games?

Jump Games is a leading publisher and developer spearheading the evolution of game design and development across Web and Mobile platforms. Besides being affiliated with global associations like Sun's iForce initiative and Forum Nokia PRO, Jump has partnered with leading content owners, publishers, Mobile operators, handset manufacturers and technology providers like Intel, Coca-Cola, Sony Ericsson, ICTV (HeadendWare), Sun, Walt Disney India, Virgin Comics, Pixiem, Miniclip Games, Kato Studios, Big Fish Games, Qualcomm, LG, and Conitec for its gaming initiatives.

Distributed across the US, Europe, South Africa, Australia, the Middle East, and Asia, our games can be accessed and played on leading networks like Hutch (Thailand), M1, MTN, Orange, Dialog Telekom, Reliance World Mobile, Hutch, Idea, BSNL, and Spice Telecom.

Our commitment to quality gaming is reflected in its award-winning games. Among the recent awards, our Mobile games Bappi Da Disco King won the BEST MOBILE GAME OF THE YEAR and The Lost Astra that bagged the OUTSTANDING INDIAN CONTENT AWARD at FICCI FRAMES 2007.

Expanding operations internationally, we have recently set up shop in Stockholm after Mumbai and Pune.

Q2. Can you tell us about your association with Reliance Communications?

Jump Games has had a long-standing association with Reliance Communications, which goes all the way back to our early days – we were the first content providers for the Reliance network and continue to be one of the premier content (game) providers for them. They are one

of our primary business partners with whom we have pioneered concepts like Pay Per Play wherein subscribers can choose to pay for each time they want to play the game instead of downloading it on their cell phones.

Jump Games was also closely associated with Reliance Communications for creating their now-popular R-World. A significant percentage of our games are now hosted on R-World on a bi-weekly basis.

We also work with Reliance Communications to promote and publish advergaming content. Very recently one of our branded game applications 'Coca-Cola Speed Jamming' developed for Coca-Cola was released exclusively for RCOM subscribers.

We have also hosted some phenomenally successful gaming contests along with Reliance Mobile World. Ten of our premium games were featured for Reliance's hugely popular countrywide gaming contest 'Don Kaun'.

Q3. What are the genres in which your company is developing mobile games?

Our Mobile games span across the entire range of gaming genres – Racing, Sports, Arcade, Puzzle, Action Adventure and so on. We have also pioneered the concept of Advergaming in India and have successfully created Mobile advergaming for names like Coca-Cola, ITC etc.

We have also created Bollywood & Hollywood celebrity titles, which have climbed the charts – Sameera Reddy, Bappi Lahiri, R. Madhavan, Jean Claude Van Damme and now, Malaika Arora Khan. Then there are games based on premium licenses such as Virgin Comics and Fido Dido, which range from casual to story-based games. Going forward,

Interview (Cont'd)

Q4. Can you throw light on the efficacy of Mobile Advergaming as a brand promotion tool?

Mobile advergaming successfully combines the benefits of advertising and Wireless gaming. The interactive nature of advergaming ensures that the consumer interacts with the brand actively as opposed to print and electronic media.

Another reason that Mobile advergaming is an efficient brand promotion tool is that Mobiles are hugely successful as a lifestyle, consumer electronics product in India and have a high market penetration. This facilitates a higher rate of consumer reach for Mobile advergaming and, consequently, for the brand, even in comparatively remote regions, where the Mobile culture is picking up fast.

Q5. What are the emerging trends in consumer behavior wrt Mobile Gaming Applications in India and abroad?

The gaming business in India is still in its infancy compared to the developed world where games have been popular since the late 70's. We are right at the beginning of consumer awareness about this new entertainment medium. Gamers in India have typically been a niche audience who acquired games/ consoles from abroad. With mobile carriers now offering games to the mass market, the gaming scenario is at the beginning of a revolution.

Q6. What are your views on the potential of Mobile Gaming business in India for companies developing mobile games?

As far as gaming is concerned, Nasscom predicts the Indian gaming industry is expected reach USD 300 Million by 2009. The growth of broadband and the focus on data services by mobile operators will drive the growth of this industry. This is a trend which has happened worldwide and India isn't too different. With the large reach of mobile phones and newer handsets coming into the market mobile gaming will show a strong growth sometime beginning next year.



University Relations Programme

Event update

An orientation session on the Relainace Developer Programme was conducted as part of the University Relations Programme in the last week of July at **K. J Somaiya Institute of Engineering & Information Technology- Mumbai**. The session was attended by the Principal, Faculty members and more than 100 students from the college. The students were given a general orientation about RDP, an orientation on the Technical Guidelines for Mobile Application Development and were also taken through sample mobile applications. Short-listed students will be working with Applications Solutions and Content Group (ASCG) for developing R Lite games.



Monthly Quiz

1. Consider the following class hierarchy:

```
A
|
+-----B1, B2
|
+----C1, C2
```

(B1 and B2 are subclasses of A and C1, C2 are subclasses of B1) Which of the following statements are correct?

Select 1 correct option.

- A objectOfC2 instance of B2 will return true.
- B objectOfC1 instance of B1 will return true.
- C objectOfA instance of B1 will return true.
- D C1 c1 = objectOfA; is a valid LOC.
- E B1 b1 = objectOfB2; is a valid LOC.

2. Which lines contain a valid constructor in the following code?

```
public class TestClass
{
    public TestClass(int a, int b) { } // 1
    public void TestClass(int a) { } // 2
    public TestClass(String s); // 3
    private TestClass(String s, int a) { } //4
    public TestClass(String s1, String s2) { }; //5
}
```

Select 3 correct options

- A. Line // 1
- B. Line // 2
- C. Line // 3
- D. Line // 4
- E. Line // 5

3. An overriding method can declare ArithmeticException in it's throws clause even if the overridden method does not have any throws clause.

Select 1 correct option.

- A True
- B False

4. If a synchronized method throws an exception in it's execution, the lock acquired by it is released automatically.

Select 1 correct option.

- A True
- B False

5. Which of the following comments are valid ?

Select 4 correct options

```
a // /* ..... */
b /* /* ..... // */
c /* // ..... // */
d /* // ..... */
e /* */ */
```

Answers :

1) B 2) A,D & E 3) A 4) A 5) A,B,C & E



Monthly Poser

Which one of the following is an advergaming currently hosted on the Reliance Mobile World?

- 1 Mickey Riksha Rush
- 2 ITC Bingo Game
- 3 Tomato City
- 4 Dhoni Biker

Answers to the monthly poser should be sent to dadp.newsletter@relianceada.com mentioning monthly poser - Aug 2007 as the subject with the sender's location stated. The winner will be decided on the basis of a lucky draw and walk away with a prize.



You can contribute ideas and information to R-evolution at the following e-mail address: dadp.newsletter@relianceada.com. Please note that contributions may be edited for clarity, style or length.

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